

Modern KyoMachiya: Livable Architecture for Kyoto

Yuhei Miyake

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School of Architecture
University of Hawaii at Manoa

Doctorate Project Committee

Spencer Leineweber, Chairperson
Michael Douglass
Kevin Miyamura

Modern KyoMachiya

Livable Architecture for Kyoto

Yuhei Miyake
May 2011

We certify that we have read the Doctorate Project and that, in our opinion, it is satisfactory in scope and quality in partial fulfillment for the degree of Doctor of Architecture in the School of Architecture, University of Hawai'i at Mānoa.

Doctorate Project Committee

Spencer Leineweber, Chairperson

Michael Douglass

Kevin Miyamura

Abstract

The World Monument Fund listed KyoMachiya, the traditional merchant houses of Kyoto, as endangered sites in 2009. Modern, high-rise buildings of commercial and residential use have rapidly replaced the KyoMachiya. These replacements have resulted in the loss of urban identity, livability, and the traditional social network in the region. In 2007, the prefectural government of Kyoto issued a new urban policy with the intent to reverse such losses. Today, all new residential developments are required to incorporate traditional design elements of KyoMachiya in their design. However, the urban policy does not fully address the true characteristics of KyoMachiya, and the incorporation of the traditional design appears only on the façade and in the gabled roof forms of apartment buildings. Unlike KyoMachiya, apartment buildings are set apart from the streets by walls, security doors, and a lack of commercial activity on the street level floor. As a result, such apartment buildings are often unwelcome as they damage the integrity of the remaining KyoMachiya structures and result in a further loss of the urban identity of Kyoto. However, with the ongoing depopulation of the central city, housing boards also desire multifamily residences whose occupants can continue traditional activities. This project includes design guidelines for multifamily residences that may solve conflicts between developers and housing boards.

Introduction

During the second half of the nineteenth century...Japan set out on her remarkable program of modernization. Her rulers saw clearly that if Japan was to survive as a nation, she must be able to match in power the White Disaster, which had entered with Commodore Perry. Most Japanese accepted the new ideas blindly. It is now difficult for us to realize how much of old Japan has been cast aside in the desire for new ways. The public schools were obsessed with teaching European perspective and chiaroscuro, and the older Japanese techniques were either derided or ignored. This has gone so far that even the native ink brush, which had been perfected over centuries for painting and writing, has been banned from the schools, and its place taken by the clumsy western oil brush.¹

- Pilgrim Award winner E.F. Bleiler

The effects of the phenomenon Bleiler described in 1964 can still be seen today. Kyoto was the only major city in Japan to survive the fires of World War II. Tokyo lost over 110,000 people during WWII while Kyoto lost less than 350. This kept Kyoto's strong identity and historical landscape intact. However, in late 2009, an article warned that the 25,000 traditional Machiya in Kyoto were on the endangered list created by the World Monuments Fund (WMF). The leading private organization dedicated to saving the world's most treasured places, the WMF reported that 13% of the KyoMachiya had been lost in the last few decades and replaced by modern high-rise buildings and parking lots. The Kyoto government reported that there were 28,000 Machiya left within Kyoto in 1998, but that hundreds are being lost every year.²

Throughout this paper, I examine the KyoMachiya and its potential to revitalize the city. According to architect Tadao Ando, "Japan started to become a world economic power during the 1960's. Japan took America as a model, including its practices of mass production and mass consumption. However, Japanese society made some sacrifices to become a major economic power, for instance, the sense of the value of family. The Japanese traditionally cherish the

¹ Okakura, Kazuo. *The Book of Tea*. Edited by Everett F. Bleiler. New York: Dover Publication, Inc, 1964.

² Digi Style Kyoto. <http://www.digistyle-kyoto.com/>

community and encourage citizens to work earnestly for one another... [as reflected in the] Machiya courtyard and back garden. In the traditional lifestyle, there was also a sense of the importance of enjoying nature. Of course, living with nature has good and bad sides. For an example, the courtyard provides natural ventilation during the summer to cool the house, but it also makes the house cold during the winter. However, I included a courtyard in my debut house *Sumisyoshi no nagaya*."

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Chapter 1: The Traditional KyoMachiya

What is KyoMachiya?

The World Monuments Fund (WMF) has added the remaining 24,000 KyoMachiya of Kyoto to their list of endangered structures. The WMF reported that Kyoto has lost 13% of the total number of KyoMachiya in the past few decades. The Kyoto government reported that there were 28,000 KyoMachiya left within Kyoto city in 1998, but that that number shrank to 25,000 by 2003.³ Hundreds of KyoMachiya are demolished every year in Kyoto.

“KyoMachiya” translates to “capital townhouse,” and is a subgroup of the Machiya, which are commercial-residential, mixed-use townhouses developed in many Japanese cities. Machiya typically consist of wood, earthen walls, and baked tile roofs called *kawara* made from local materials. The “capital” in the name is in reference to Kyoto, which was the political capital of Japan from 700 to 1868. During this period, Kyoto was laid out in a grid system adopted from China. Later, Shogun Hideyoshi created more streets to scale down the grid system and to increase the density of the city. Due to this grid system, many KyoMachiya are built on narrow and deep strips of land, thus earning the buildings the nickname of “eel bedrooms.” In contrast, the majority of the other cities in Japan did not adopt a grid system for their streets, and even today, navigating from point A to point B in those cities can be a challenge.

In 1868, the political capital of Japan moved from Kyoto to Tokyo, the current capital. Although the political capital, the world community recognizes Kyoto as the cultural capital of Japan. During World War II, Kyoto was on the shortlist of potential sites for the dropping of the atomic bomb, but so established was Kyoto’s reputation as the historical and cultural capital of Japan that the United States of America removed Kyoto from that list out of fear of the negative worldwide repercussions. For the most part, Kyoto was generally spared from severe damages due to World War II, and the citizens of Kyoto felt relatively safe.

The KyoMachiya is a narrow and long townhouse. The street front length may be as short as 12 feet while it may run as deep as 120 feet. Within these narrow structures, many

³ Digi Style Kyoto. <http://www.digistyle-kyoto.com>.

activities and functions are accomplished. The KyoMachiya create a complete space within the dense urban area. Whereas western mixed-use buildings tend to use the entire first floor for commercial space, the KyoMachiya includes both commercial and residential space on the first floor. The deep and narrow townhouse provides a hierarchy in privacy. The front that opens to the street is the public store/shop area, further in is the semi-private area where guests and customers are received and entertained, and yet further into the back is the private area where the family lives. Incorporated in the townhouse are two small gardens, which in addition to enhancing ventilation provide residents with opportunities to connect with nature. The majority of KyoMachiya were either one or two-story structures, with only a few having a third floor.

Figure 1 and 2 give a good visual description of the typical elements of a KyoMachiya.

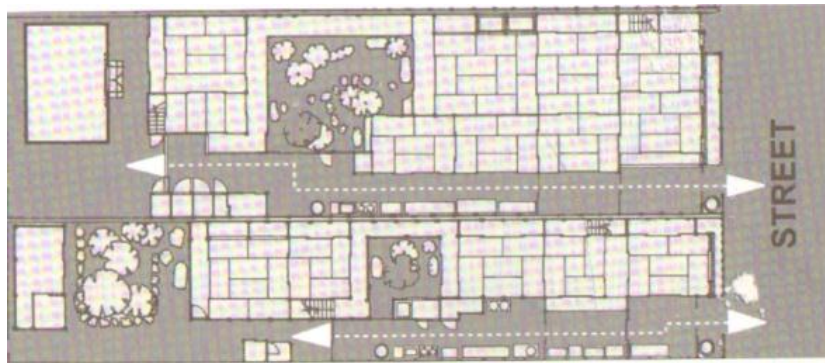


Figure 1: KyoMachiya floor plan⁴

⁴ Barrie Shelton, Learning from the Japanese Cities (London: E & FN Spon, 1999) Page 78.

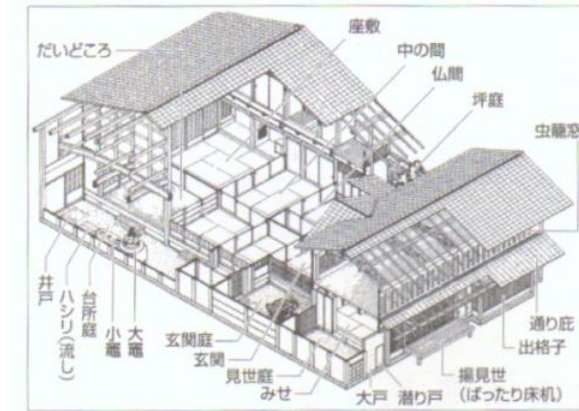


Figure 2: Perspective section of KyoMachiya⁵

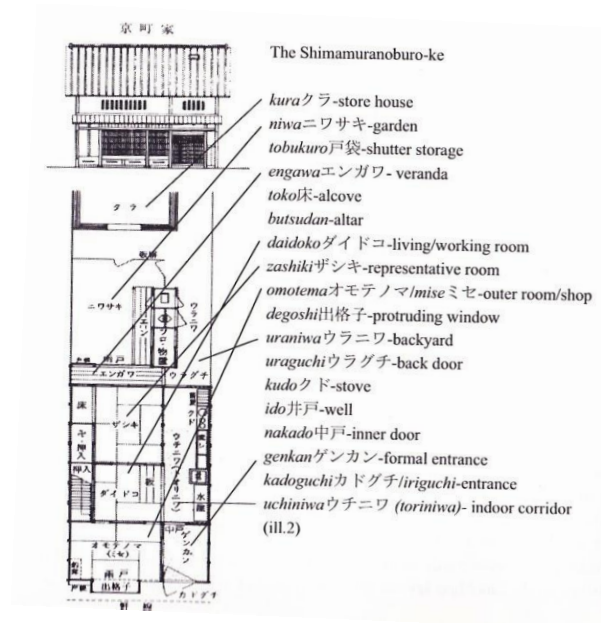


Figure 3: Elevation and plan of KyoMachiya⁷

Most of the existing KyoMachiya were built during the late Edo period (1603-1868) and the mid-Showa period (1926-1989). Most of the older Machiya that exist today are found in the southern sections of the city. The newer Machiya are found in the northern sections of the city. These Machiya were built after the Meiji Restoration, by merchants and artisans, after the rich samurai and royalty moved out of the area. In central Kyoto, most of the Machiya were

⁵ Takeshi Ito, The Cityscape and the Machiya (Tokyo: Yamakawa Publication, 2007) Page 62.

⁷ Takeshi Ito, Machiya (Tokyo: Yamakawa Publication, 2007) Page 62.

demolished and replaced with new structures during the period of high land prices. The KyoMachiya defined downtown Kyoto's atmosphere until the arrival of modern glass and concrete structures.⁸

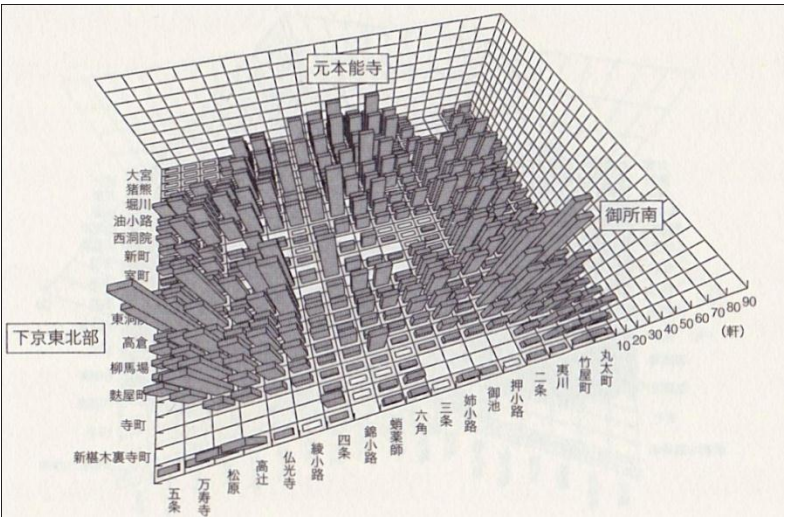



Figure 4: Distribution of KyoMachiya in Kyoto⁹





Shrines and temples are the landmarks of Kyoto. However, the 24,000 remaining KyoMachiya give Kyoto a “sense of place.” The shortened streets and scaled down grid system make the KyoMachiya district a walkable city. The commercial-residential, mixed-use capital townhouses give the people the opportunity to live, work, and play in the same neighborhood, thereby generating a sense of community and making the KyoMachiya district a livable city.

The Kyoto city government has categorized the KyoMachiya into seven different types.



Figure	Name	Total existing number	
	Sonikai (A full two-story house)	10,098 units 42.3%	This style of KyoMachiya was built during the end of the Meiji era and the Taisyo era. Wooden frame with glass windows on the second floor are common.

⁸ Kyoto Center of Community Collaboration. *Machiya Revival in Kyoto*. (Kyoto: Mitsumura Suiko Shoin, 2009), Page 10.

⁹ Yoshifumi, 2008, Page 27.

Figure 5: Sonikai ¹⁰			
 Figure 6: Chunikai ⁹	Chunikai (2 stories)	3430 units 14.4%	The ceiling height of the second floor is usually shorter than the ceiling height of the first floor for this type of Machiya; this was due to height restrictions placed on these constructions. This style of KyoMachiya was completed in early modern times, and it was the popular style of the KyoMachiya until the latter period in the Meiji era. An insect basket window on the second floor is common.
 Figure 7: Shimotaya ⁹	Shimotaya		This two-story Machiya has no shop and was used as a residence. This form of the Machiya started appearing in the 1600's.
 Figure 8: Sangaidate ⁹	Sangaitate (3 stories)	114 units 0.5%	This is the rarest type of KyoMachiya and was developed after the Taisyo era.
 Figure 9: Hiraya ⁹	Hiraya (1 story)	2,466 units 10.3%	This type of KyoMachiya does not have a store. It was built exclusively as a residence. One characteristic of the one-storied KyoMachiya is the small windows facing the street.

¹⁰ Kyoto City Government . (2010, Jan 4). *Kyoto city making survey*. Retrieved March 30, 2010, from Kyoto City Information Center: <http://www.city.kyoto.lg.jp/tokei/page/0000004248.html>.

 <p>Figure 10: Horitsuki⁹</p>	Horitsuki	967 units 4%	This type of Machiya was built for rich merchants. The structure was not built for commercial use, but as a residence. The <i>Horitsuki</i> is surrounded by tall walls and the façade is set back from the street.
 <p>Figure 11: Kanbankenchiku⁹</p>	Kanban Kenchiku	2,160 units 9%	This KyoMachiya is modified to look like modern architecture. Modifications were made during the postwar era and the economic bubble period. The appearance is different from typical KyoMachiya, but it is comparatively easy to return the appearance back to the traditional KyoMachiya.

Chapter 2: What was the Cause for the Decline of the KyoMachiya?

Why Kyoto was Unable to Preserve Many of the KyoMachiya

Kyoto is well known as the historic capital of Japan, and it has several policies to support its cultural assets. In 1930, the Kyoto government restricted the zoning around the city rim to preserve the natural scenery. In 1966, the national government passed the Old Capital Conservation Law to restrict developments in the rim of Kyoto. This law gives less power to the landowner and more power to the municipality government; it gives the municipalities the power to purchase from landowners if they find their development plans unsuitable.¹¹



Figure 12: Map showing conservation zones and preservation in and around Kyoto.¹²

¹¹ Fieve, Nicolas, and Paul Waley. Japanese Capitals in Historical Perspective - Place, Power and Memory in Kyoto, Edo and Tokyo. London: RoutledgeCurzon, 2003. Page 348.

¹² Fieve, Nicolas, and Paul Waley. Page 349.

In the late 1960's and early 1970's, changes in architecture style became controversial. A professor at Kyoto University led the urban historic labor movement because many architects at the time were opposed to conservation. In 1972, a new ordinance was made to preserve the façade of the Machiya building. This ordinance allowed Machiya in the historic district to be demolished if the new building had a Machiya style façade and used original materials. In 1996, the 1972 Kyoto Urban Landscape Ordinance was amended to further control the urban landscape. Some of the areas in the central city were added to historic districts such as the traditional textile district of Nishijin.

Still, in 1998, the Kyoto government reported that there were only 28,000 Machiya left within Kyoto city and hundreds of them are being demolished every year.¹³

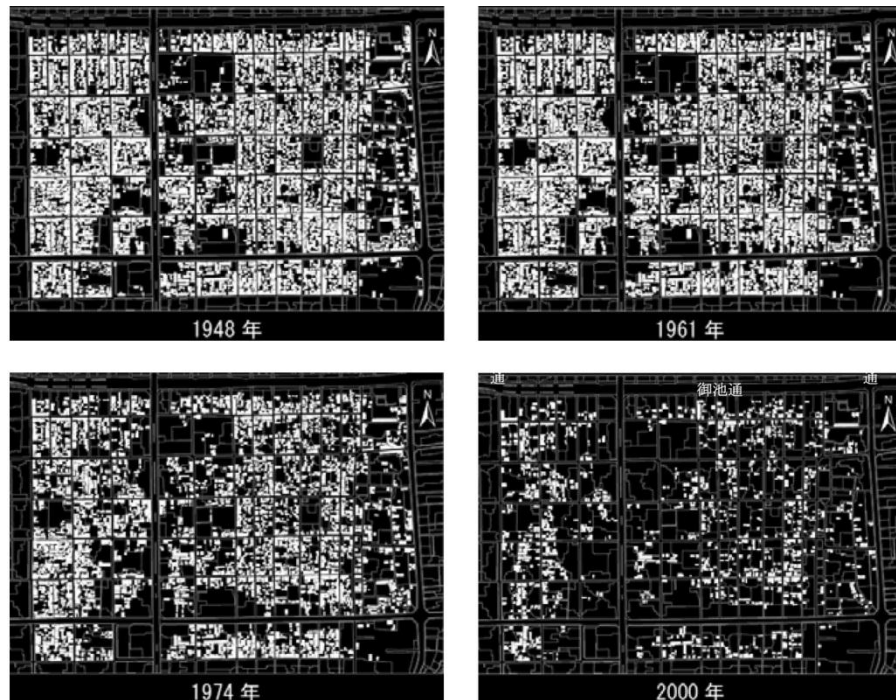


Figure 13: Change in numbers of traditional KyoMachiya in Nakagyoku and Shimogyoku (KyoMachiya in white)

Yoshifumi Muneta, a professor at Kyoto City University who has been actively working on KyoMachiya for the last fifteen years, identified five changes that are causing the KyoMachiya to disappear from Kyoto:

¹³ Digi Style Kyoto. <http://www.digistyle-kyoto.com/>.

1. Changes in urban policies and architecture laws
2. Changes in architecture style and environment
3. Changes in ownership of real estate
4. Changes in city structure
5. Changes in family structure

Changes in Urban Policies and Architecture Laws

The architecture laws were revised in 1950 to support population growth and to increase safety in home constructions. In 1950, the 57-meter tall Higashi Temple was the tallest wooden structure in Kyoto, and most KyoMachiya were no more than 10 meters in height. The building height limit was set to 20 meters in residential districts and 31 meters in the central area. In the 1960's, the building height limit was removed to allow further developments. This caused some controversy in 1964 when the 131-meter Kyoto Tower was constructed in front of Kyoto Station, and again in 1969, when a 20-meter apartment building was constructed in front of the Ginkakuji, a designated World Heritage site. In 1973, the Floor Area Ratio (FAR) was set to 700%, and the building height limit was set to 45 meters in the Kyoto Station district. The Construction Department of Japan decided that super high-rises were not appropriate for Kyoto; therefore, Kyoto was allowed to have different height regulations than Tokyo and Osaka.¹⁴ However, these policies still allowed eleven-story office buildings to be built right next to two-story residential buildings, creating a chaotic cityscape for the Kyoto central district and preventing sunlight from reaching the surrounding low-rise buildings.

In the 1950's, new constructions were required to meet tougher government standards for fire resistance and earthquake proofing. The purpose of the new building codes was to increase the lifespan of buildings and to decrease the CO2 emissions from new constructions.¹⁵ The new codes supported the use of aluminum in window frames and doors in new construction because of its fire resistant properties. This law halted the building of traditional Japanese timber houses, such as Machiya, because they did not meet the new fire and earthquake codes.

¹⁴ Yoshifumi, 2008, Page 118.

¹⁵ Yoshifumi, 2008, Page 71.

Changes in Architecture Style and Environment

From the 1960's to the 1980's, Japan's economic miracle period, the Japanese people favored brand new houses, fashionable clothes, and convenient electronics. The average lifespan of the residential houses in Japan is 30 years, which is more than a decade shorter than the US average of 44 years, and half of the UK average of 75 years. During this modernization period when western style buildings were preferred, large-scale projects such as the Kyoto Tower, Kyoto Station, and the Kyocera building were built. Many KyoMachiya were demolished and replaced with more profitable department stores and commercial buildings. The smaller KyoMachiya were replaced with parking lots, apartments, and modern style houses. People even covered their traditional KyoMachiya façades with concrete and plaster to give them a modern appearance.

In 2005, the total floor area of new construction in Japan was 170,000,000m² (42,007.88 acres), which is nearly two times as much as in 1973 and 570% more than in 1950.¹⁶ Because of the high construction rate and the shrinking population, in 2003, 6,600,000 houses were unoccupied in Japan, and 2,120,000 houses were waiting to be demolished.

Kyoto also experienced a high rate of housing construction. In 2003, there were 732,980 houses in Kyoto and only 625,270 of them were occupied. "I am amazed that any of the 100-year-old KyoMachiya survived these circumstances," said Professor Yoshifumi.¹⁷

In 1994, the Japanese government established a large budget for the preservations of temples, shrines, and gardens in Kyoto. UNESCO added thirteen of them to its World Heritage list in 1994. Although Kyoto city has numerous preservation acts and leads the nation in preservation, the KyoMachiya that formed the cityscape of Kyoto had no protection until recently.

Changes in Ownership of Real Estate

In 1946 and 1947, there were major shifts in real estate ownership brought about by the government's efforts to raise revenue. In 1946, a year after the end of World War II, a one-time 25%-90% tax was levied against the wealthy KyoMachiya owners with 100,000 yen or more in

¹⁶ Yoshifumi, 2008, Page 70.

¹⁷ Yoshifumi, 2008, Page 71.

assets. Many property owners were forced to sell off much of their holdings in rental units to pay this tax.¹⁸ In 1947, the property tax was raised.¹⁹ These tax policies forced those who owned large numbers of small rental Machiya or Nagaya (long multi-unit rental structures) to sell off their assets. Many people who live in Nagaya today gained ownership of their houses during these years. Until 1947, 70% of all houses in Kyoto city were rental units. These two tax policies alone changed the structure of the city and took the power and ownership away from the few large KyoMachiya owners who controlled the cityscape.

“The belief is widespread in Japan that a person can do anything he wants with his property; build anything he wishes on his land. In a sense this is true.”²⁰

Changes in City Structure

During the real estate bubble years that started in late 1980 and ended in 1991, real estate prices skyrocketed. In 1991, the 2.86 square mile emperor’s palace in Tokyo was worth more than the combined value of all the real estate in the state of California.²¹ A square meter of land in central Kyoto cost over 2,000,000 yen (approximately 22,000 USD per square foot). The inflated real estate value resulted in inflated inheritance taxes. The sons and daughters who inherited their parents’ KyoMachiya had either to sell them or take on twenty-year mortgages to pay inheritance taxes often over 1 million dollars. Real estate speculators bought the KyoMachiya, replaced them with high-rise apartments, and re-sold them for huge profits. In 1988, “Kyo no machizukuri renraku kai” was formed to protect neighborhoods from high-rise apartment developments. The Japanese Ministry of Finance began to regulate real estate investments in 1990 and changed the property tax law in 1991, but by this time, many KyoMachiya had already been demolished and replaced with other structures.

Changes in Family Structure

Changes in the rights of inheritance and the size of the family unit both contributed to the decline of KyoMachiya ownership. In 1898, the Meiji government revised the civil law on

¹⁸ Yoshifumi, 2008, Page 35.

¹⁹ Yoshifumi, 2008, Page 77.

²⁰ Fieve, Nicolas and Paul Waley. Japanese Capitals in Historical Perspective - Place, Power and Memory in Kyoto, Edo and Tokyo. London: RoutledgeCurzon, 2003. Page 361.

²¹ Ian Cowie, "Oriental risks and rewards for optimistic occidentals." August 06, 2004. The Daily Telegraph. Retrieved 2008-10-16.

rights of inheritance from oldest son to oldest child. Whether eldest son or daughter, the oldest child inherited most of the parents' assets, so the challenge of maintaining the family residence was minimal. However, after World War II, the civil law on rights of inheritance changed again, so that all children received an equal, yet smaller, portion of their parents' assets. The survivors were thus faced with the option of selling off the home and splitting the proceeds, or buying each sibling's share of the family home. Whichever the case, continuing the family ownership of the home into the next generation suddenly became more financially challenging.

From 1950 to 2005, the size of the average family in Kyoto city shrank from 5.1 to 2.21 people.²² Most KyoMachiya were built for five or more people and were too large for a family for two or three. The declining birthrate was not the only reason for the decrease in the size of the average family. There were also fewer multi-generational families living together. Younger adults chose to live apart from their parents.

²² Yoshifumi, 2008, Page 69.

Chapter 3: KyoMachiya Replacements

What Structures Replaced the KyoMachiya?

Conforming to the new fire codes and earthquake regulations made construction of new, primarily timber-based KyoMachiya extremely difficult. The five factors contributing to the decline of the preservation and construction of KyoMachiya opened up new opportunities for investors. With the increased building height limit, FAR, and cost of real estate, many affluent KyoMachiya owners demolished their low-rise KyoMachiya and replaced them with high-rise apartments and office buildings, large department stores, and parking structures. A surge of apartment developments appeared in Kyoto after the real estate bubble burst in 1991. The lower property value and shrinkage in local businesses allowed high-rise apartment developments. The number of parking structures replacing KyoMachiya continues to grow. Kyoto has the second highest parking fee rate in the nation at 18,000 yen per month on average. Many KyoMachiya owners took advantage of the changing economic situations and converted their low-rise KyoMachiya into higher density, higher income producing assets.

Impact on the City

Offices and large commercial stores first replaced the traditional KyoMachiya during the economic growth period. Parking structures and high-rise apartments then appeared after the real-estate bubble burst, which changed the dynamics of the city. The appearance of offices,

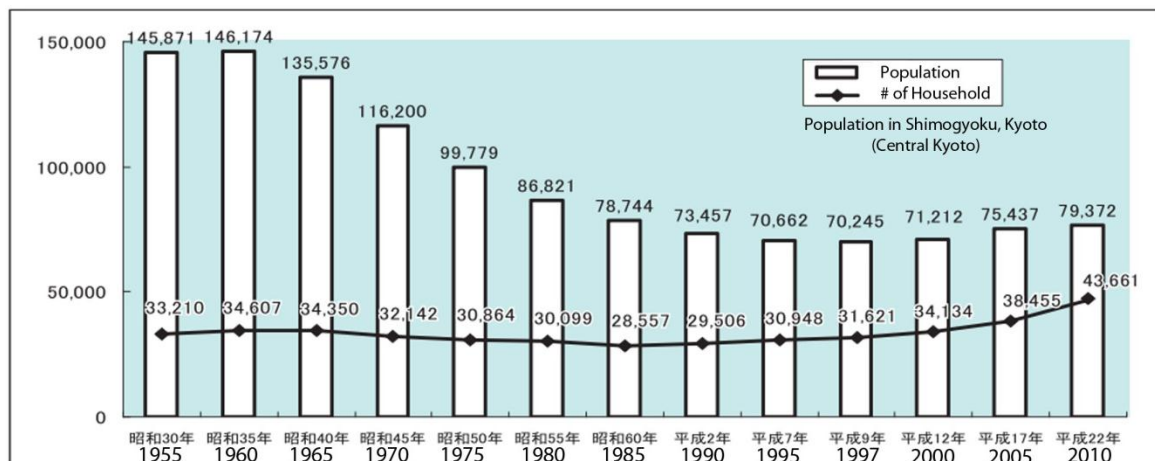


Figure 14: Population of Shimogyoku ward in Central Kyoto. Shimogyoku.gov

commercial stores, and parking lots caused a decline in the population of central Kyoto. The population of central Kyoto declined steadily from the end of World War II to the mid-1990's.

The population in central Kyoto started to rise after forty years of continuous decline because of the increase in apartment developments. Large numbers of apartments started to appear in central Kyoto after the real estate bubble popped in 1992. The average price for apartment units in Kyoto has dropped from 70,000,000 yen to 30,000,000 yen over the last twenty years.

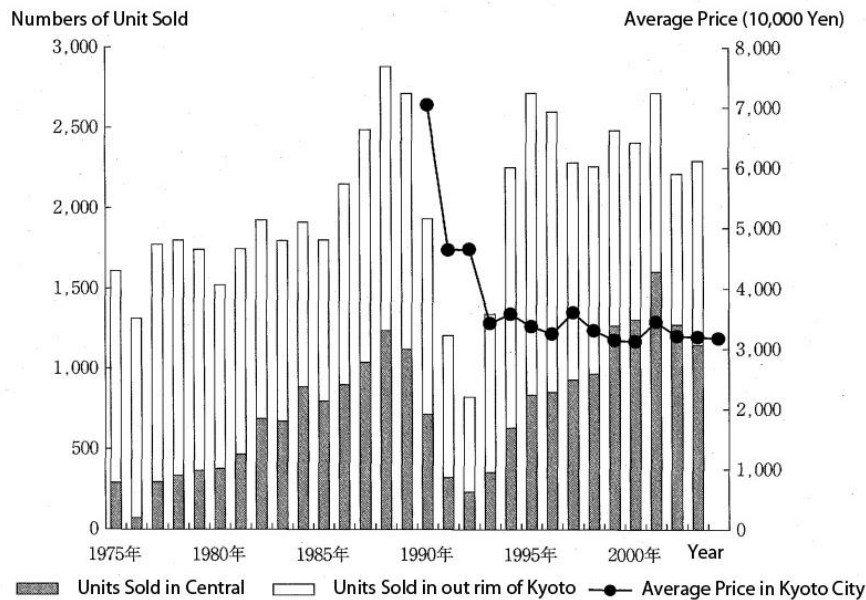


Figure 15: Number of apartments sold in Kyoto²³

²³ Horiuchi, Chika. *The Population Growth and the Supply Structure of Condominiums in the Central Area of Kyoto*. Journal, Osaka: The Japan Association of Economic Geographers, 2009.

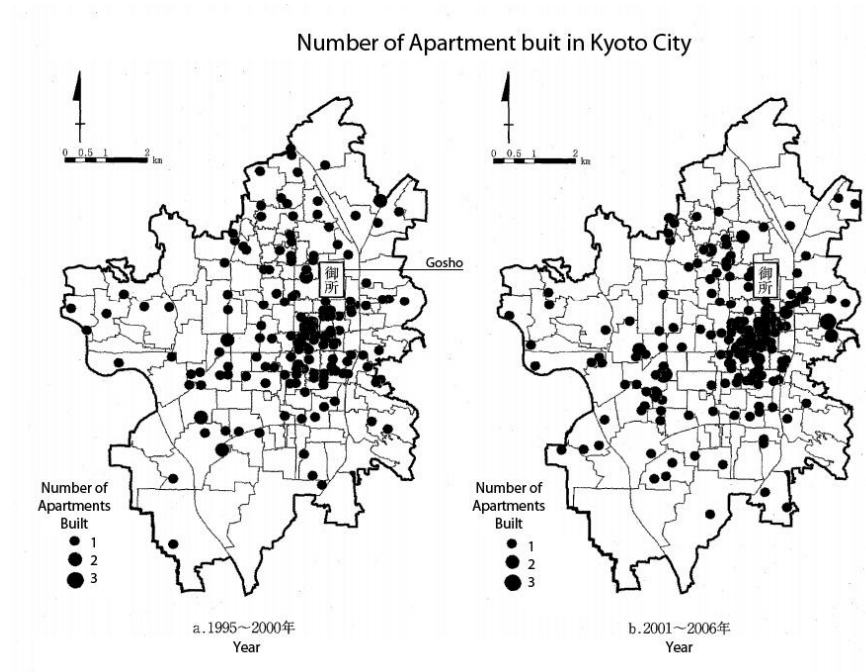


Figure 16: Number of apartments sold in Kyoto²⁴

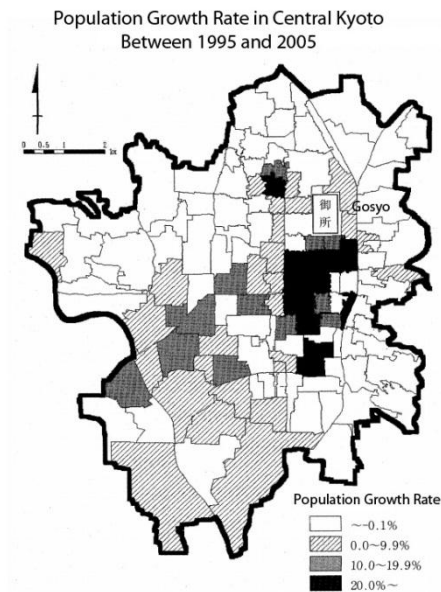
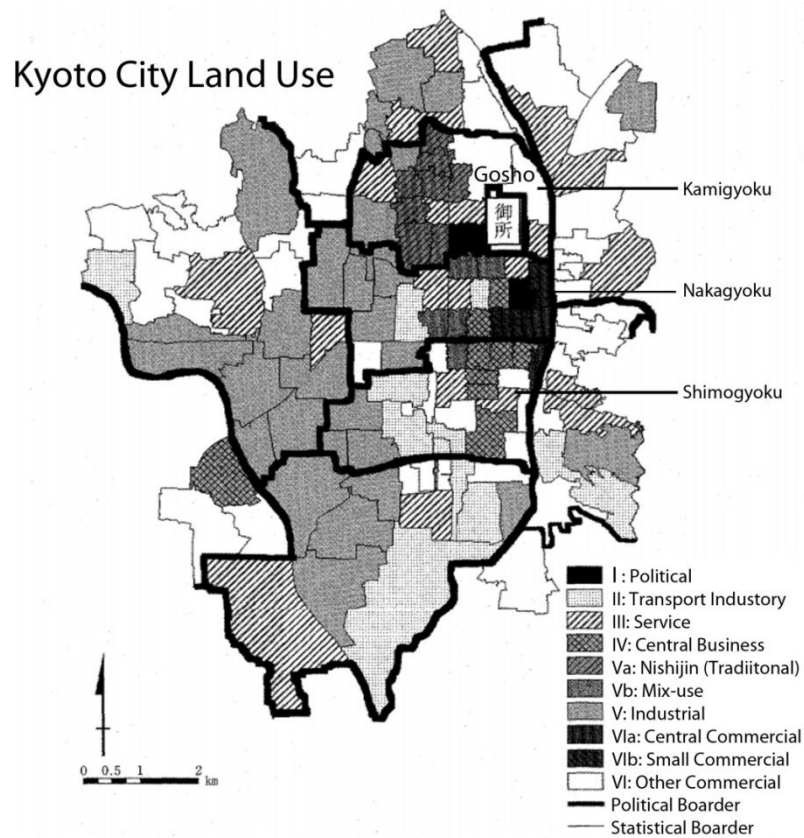


Figure 17: Population growth rate in central Kyoto²⁵

²⁴ Horiuchi, 2009, P12.

²⁵ Horiuchi, 2009, P11.

Figure 16 and 17 show the direct relationship between apartment developments and population growth.



How Property Was Used Before Apartment

	Business		unused		Business + unused		Other		Ave. Size	
	95~00	01~06	95~00	01~06	95~00	01~06	95~00	01~06	95~00	01~06
I	33.3	33.3	33.3	33.3	33.3	33.3	0.0	0.0	1.67	1.83
IV	34.8	41.2	26.1	17.6	13.0	14.7	26.1	26.5	2.17	1.53
Vb	20.0	57.1	20.0	35.7	13.3	7.1	46.7	0.0	3.13	1.14
VIa	66.7	25.0	0.0	50.0	33.3	0.0	0.0	25.0	2.00	3.50
VIb	22.2	81.3	22.2	6.3	11.1	12.5	44.4	0.0	1.89	1.25
	30.2	51.4	22.6	21.6	15.1	13.5	32.1	13.5	2.17	1.85

Business: Used as Office, Bank and other types of commercial activity

Unused: Vacant Land or Parking

Other: Residential

Figure 18: How property was used before apartments²⁶

²⁶ Horiuchi, 2009, P8.

Most of the new apartment developments were the result of speculators reacting to the drop in property value and the decline in commercial activities. Figure 18 shows that many commercial properties were replaced with apartments.

The surge in modern city development resulted in a considerable loss of connection to the community, the loss of a livable city, diminished quality of city life, and a great loss in “sense of place.”

First, modern developments ignored traditional customs and craftsmanship in their construction techniques, which Ralph acknowledges led to “the weakening of distinct and diverse experiences and identities of places.”²⁷ The mixture of old, timber low-rise structures and new, steel high-rise structures created chaotic cityscapes. The high-rise structures take the identity and “sense of place” from Kyoto, and as Yuen said, take attention away from public spaces. High-rise buildings often have windows that face directly into neighbors’ homes and take privacy away from them. The existence of utility cables in the sky further pulls attention away from the public streets. The numbers of complaints filed to the city regarding apartment developments has been increasing in Kyoto.

Second, apartments, offices, department stores, and parking lots are all single-use structures, and streets become less vibrant with an excess of them. The total number of mixed-use structures has been declining as result of the demolition of KyoMachiya (Figure 19). After a full day’s work, people must commute to their homes in the suburbs, leaving the downtown streets silent after 5pm. Figure 20 shows that Nakagyoku has 160% of its nighttime population during the day.

²⁷ Relph, Edward. *Place and Placelessness* . London: Pion Limited, 1976. Page 6.

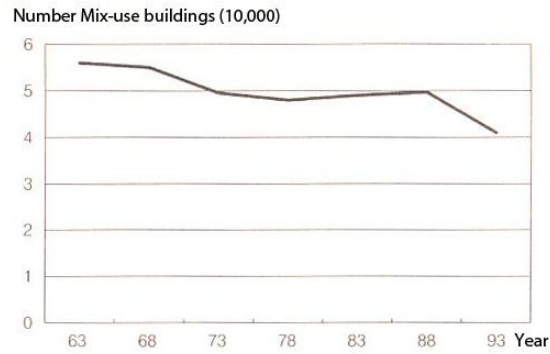


Figure 19: Number of mixed-use residential commercial units in central Kyoto²⁸

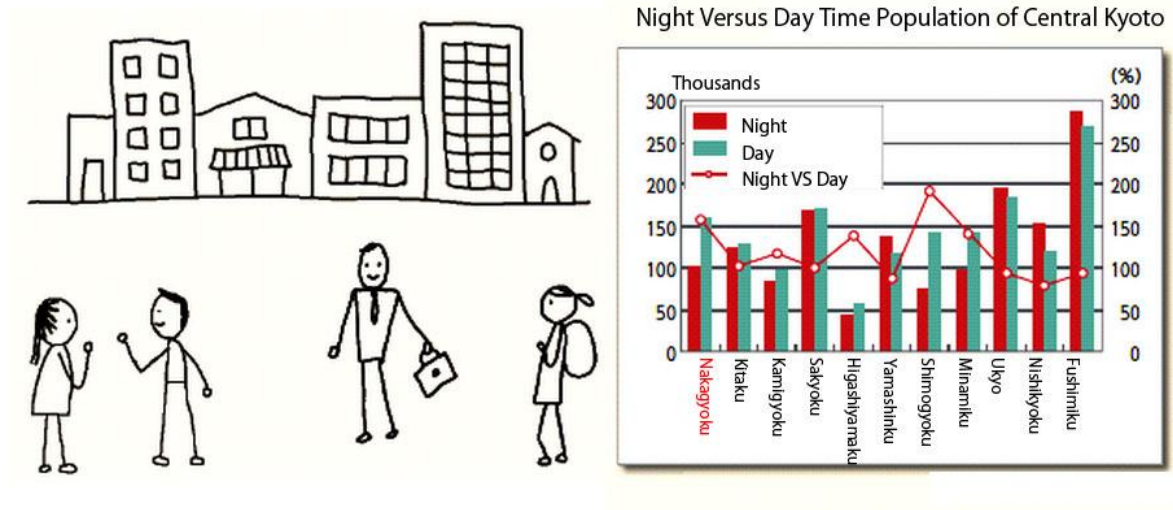


Figure 20: Day and night population of Central Kyoto²⁹

Third, most modern developments ignore the street and privatize their structures. The front doors of modern apartment buildings are often not accessible from the street. There is a barricade between the buildings' occupants and the street. The façade of the KyoMachiya touches the street and there is no additional wall between the structure and the street. The commercial activities allow private housing to be more engaged with its surroundings.

²⁸ Yoshifumi, 2008, Page 99.

²⁹ Nakagyoku

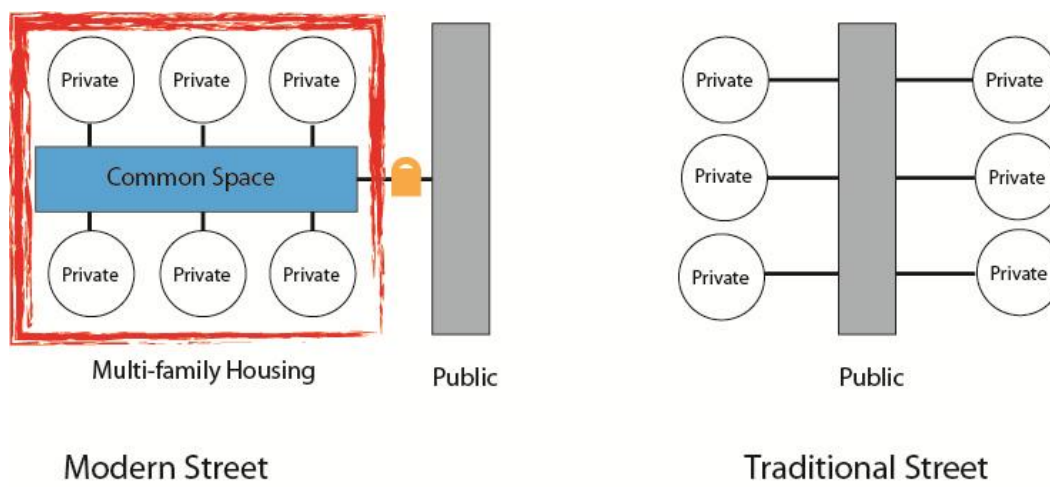


Figure 21: Traditional versus modern street

Fourth, there was a reduction in the inventory space available to small local business owners. With the introduction of large national and international chain stores and offices, many small local businesses were no longer able to compete and closed up shop. The result was the loss of many small specialty shops, mostly mom and pop types of operations that specialized in local crafts and foods. Tokyo's electronic department store Yodobashi Camera, Spain's fashion giant Zara, Japanese apparel chain Uniqlo, and American chain restaurant Tony Roma's all arrived to the Kyoto Station district in 2010.

"Smaller, locally owned businesses, it turns out, makes good fiscal sense and at the same time they help strengthen the community and contribute to its uniqueness and distinctiveness."³⁰ However, big box stores such as Wal-Mart are popular with their unbelievable pricing and selections of merchandise. Mega international corporations such as Wal-Mart destroy local towns by monopolization. Wal-Mart employs more than 1,500,000 people worldwide, and its net sales were \$276 billion in 2004, which makes it the largest retailer in the world.³¹ Wal-Mart is the number one retailer in Canada, Mexico, and the United States. In Japan, Wal-Mart owns 1/3 of the Seiyu retail stores, which is its means of gaining a foothold

³⁰ Beatley, Page 16.

³¹ Bill Quinn, *How Wal-Mart is Destroying America: And What You Can Do About It* (Berkeley: Ten Speed Press, 2005) Page xvii.

and then exerting its dominance. According to Bill Quinn, the author of *How Wal-Mart is Destroying America*, there are several reasons why Wal-Mart is harmful to the city.

- Locally owned stores will be eliminated
- At least three jobs are lost for every two jobs created by Wal-Mart
- Wal-Mart does not pay livable wages
- Wal-Mart eliminates their competition
- Taxpayers pay for disaster
- Other towns suffer

Wal-Mart also kills tourist sites. In 2004, the National Trust for Historic Preservation placed the state of Vermont at the top of its endangered list. It blames international mega box retailers such as Wal-Mart and K-Mart for turning historical towns into ghost towns.³²

Citizens in Kyoto were angry when Yodobashi Camera held its first public meeting because it only occurred after all the negotiations between the city government and Yodobashi Camera were final and had been conducted without input from the local community. The meeting was held only because some citizens complained to the government about the mafia's involvement in purchasing parcels of land for Yodobashi Camera. The leader of the largest Kyoto merchant organization was angry because the government did not inform him about the arrival of the mega camera store from Tokyo or its merchandise. He said, "We want to make walking enjoyable in Kyoto city; we don't want to attract automobiles." Yodobashi Camera Kyoto will have 520 parking stalls.

Fifth, modern developments are often single-use and have no hierarchy in privacy. They even diminish the privacy of the existing KyoMachiya by creating commercial spaces that stretch from the street front to the back of the property line and into the open courtyards. KyoMachiya take advantage of the deep sites and have strong public connections on their façades, but quiet private spaces in the back. The long and narrow property sites provided opportunities to build structures that have hierarchy in privacy.

Sixth, since the KyoMachiya replacements often reach the maximum building height limits, there are no places for nature, and they negatively affect the cityscape. The streets are

³² Nationaltrust, May 24, 2004, "History is in our Hands," www.Nationaltrust.org.

also longer, which makes them less favorable for pedestrians and more favorable for automobile transportation.

Impact on the City: Case Study

This is a study of one city block in central Kyoto to elucidate the impact of the post-KyoMachiya structures. The site is located northwest of the intersection of Shijo and Karasuma Streets. There are two subway stops on this intersection, and they are two of the busiest during the day. Neighborhood boards are typically organized by city block. One square block in Kyoto normally contains four neighborhood boards, one per street side, categorized as: (a) Uradeyamacho, (b) Kikusuibokocho, (c) Kankobocho, and (d) Takannacho. Figures 22 and 23 show how quickly KyoMachiya disappeared in this block. The gray boxes in the second rows of Figure 22 and 23 indicate the KyoMachiya structures and the last diagram shows the population in each board.

1948

1961



Figure 22: Karasuma – Shijo 1948 and 1961³³

³³ Tatsumi, Kazuo. *Machiya Style Multifamily Housing*. Kyoto: Gakugei, 1999.

1974



2008

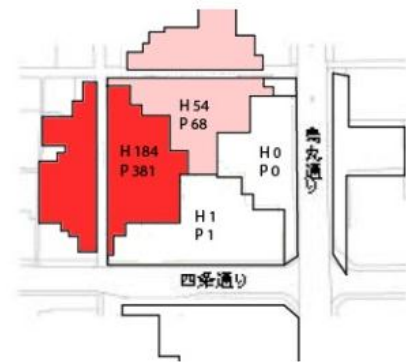


Figure 23: Karasuma – Shijo 1974 and 2008³⁴

- (a) The Uradeyamacho has the most traditional cityscape left among the four boards in this block. It is believed to be where Empress Jingu (AD 169 – 269) caught koi fish to celebrate victories of war. Uradeyamacho is also one of the 32 neighborhood boards responsible for the Gion Matsuri. The low-rise KyoMachiya is still the dominant structure in Uradeyamacho. There were 54 households with a population of 68 as of 2008.

³⁴ Tatsumi, Kazuo. *Machiya Style Multifamily Housing*. Kyoto: Gakugei, 1999.



Figure 24: Uradeyamacho (Google Earth)

- (b) The Kikusuibokocho was named after an old water well and is also responsible for the Gion Matsuri. The population was declining in this neighborhood until two large apartments with 59 units and 77 units were built. There were 184 households with a population of 381 in 2008. Although Kikusuibokocho was able to increase its population by accepting these apartment developments, the large apartment buildings keep the street silent because these apartments have weak connections to the street with security doors that lock the public out of the buildings.



Figure 25: Kikusuibokocho (Google Earth)

- (c) The Kankobokocho was named after a ward in China and is responsible for the second cart in the Gion Matsuri. Kankobokocho sits on one of the largest commercial streets in Kyoto, Shijo, where high-rise offices and commercial buildings have replaced most of the KyoMachiya. There is only one KyoMachiya, with one

household and one person living there, which makes it very difficult for that neighborhood to participate in the Gion Matsuri. There is a program called “Creating the future of the Kankobokocho”³⁵ meant to support the Gion Matsuri and neighborhood activities in Kankobokocho. The program welcomes anyone that is interested in Kankobokocho and teaches children to carry on the traditions. Children must agree to participate for ten continuous years to be part of the program.



Figure 26: Kankobokocho (Google Earth)

- (d) Takannacho is sitting on the Karasuma and has no KyoMachiya left or any residents living in the neighborhood. The street is covered with national chain banks such as Mitsui-Sumitomo Bank and offices. The street becomes silent after 5pm when the banks close and office hours are over.

³⁵ *Kankoboko*. 2001-2011. <http://www.kankoboko.jp/> (accessed April 2, 2011).



Figure 27: Takannacho (Google Earth)

Chapter 4: What Issues are Important to KyoMachiya Occupants?

The Lives of Inhabitants

The first citywide survey of KyoMachiya was conducted in 1998. It was organized by the Kyoto Center for Community Collaboration with the help of hundreds of volunteers. Yoshifumi Yoneda, a professor at Kyoto City University, organized the survey. The people who conducted the survey were supporters of the KyoMachiya, and the purpose of the survey was to understand the circumstances of the people who live in them.

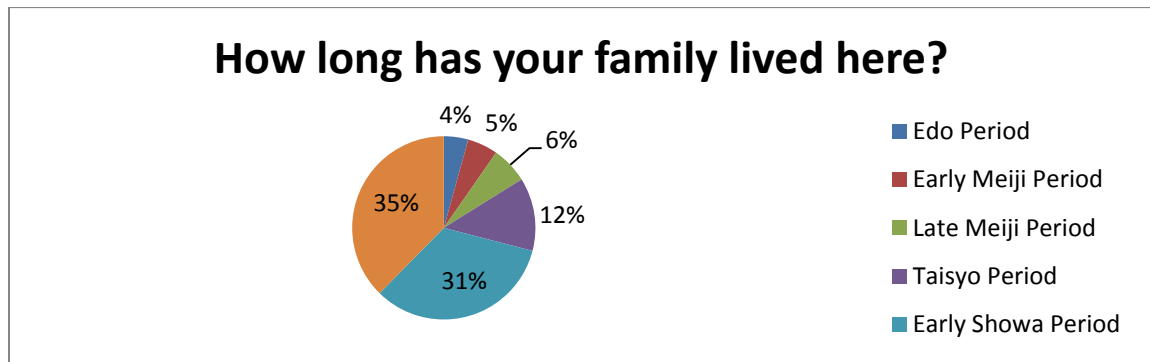


Figure 28: Survey from KyoMachiya residences³⁶

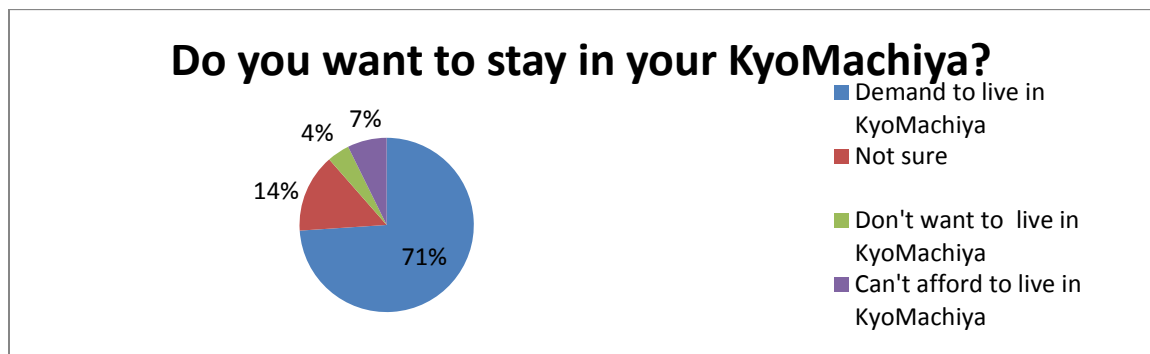


Figure 29: Survey from KyoMachiya residences³⁷

³⁶ Yoshifumi Yoneda, Theory of Kyoto Revitalization: Direction of city making. (Kyoto: Gakugei Publication, 2008) Page 42.

³⁷ Yoshifumi Yoneda, Theory of Kyoto Revitalization: Direction of city making. (Kyoto: Gakugei Publication, 2008) Page 43.

Figure 29 shows that most residents of KyoMachiya desire to continue living in them. The survey also shows that most residents are satisfied with the size of their dwellings and their social lives, but are concerned about the lighting and layout. Many were also concerned about the high-rise buildings blocking their sun and natural ventilation, and violating their privacy.

Figure 30: Size of the existing KyoMachiya³⁸

Size of Machiya (Tsubo)	Number of Machiya	%
15	6,259	26.2
Between 15 and 25	8,439	35.3
Between 25 and 45	5,317	22.3
Between 45 and 70	1,650	6.9
70 and up	1,042	4.4
Unknown	1,180	4.9
Total	23,887	100.0

(1 tsubo = 35.54 square feet)

Professor Yoneda noticed during the survey that larger KyoMachiya are more likely to be in better condition than the smaller KyoMachiya. One reason is financial; a second reason is that the larger KyoMachiya owners are more likely to acknowledge their KyoMachiya as valuable assets.

In 2003, a second survey was conducted; the number of KyoMachiya had decreased from 28,000 to 25,000 during these five years.³⁹ That is a 2% decrease per year and why the World Monument Fund listed the KyoMachiya as endangered sites in 2009. Fifteen KyoMachiya

³⁸ Yoshifumi Yoneda, *Theory of Kyoto Revitalization: Direction of city making*. (Kyoto: Gakugei Publication, 2008) Page 20.

³⁹ Yoshifumi Yoneda, *Theory of Kyoto Revitalization: Direction of city making*. (Kyoto: Gakugei Publication, 2008) Page 17.

are registered as Japan National Treasures and are protected by the government. However, thousands of 100-year-old historical KyoMachiya have no protection against their demolition or financial support for maintenance. Although the KyoMachiya were the dominant structures of downtown Kyoto and defined the city until the 1950's, the KyoMachiya only accounted for 3.9% of the 730,000 houses in central Kyoto city in 2003.⁴⁰

Kyoto has a population of 1,470,000, and 590,000 of them live in the historic district of Kyoto.⁴¹ There were 60,000 people living in the 28,000 KyoMachiya in 2003.

Figure 31: Concerns of KyoMachiya residents⁴²



Figure 31 shows the current concerns of KyoMachiya residents. Fire and earthquakes are their number one concern. The chart also shows that more than 40% of KyoMachiya residents feel that high-rise buildings surrounding their homes are diminishing their quality of life. Natural lighting and natural ventilation are disrupted or completely blocked by surrounding high-rise buildings.

⁴⁰ Yoshifumi, 2008, Page 17.

⁴¹ Yoshifumi, 2008, Page 34.

⁴² Kyoto Center of Community Collaboration, 2009.

Kyomachiya Pyramid

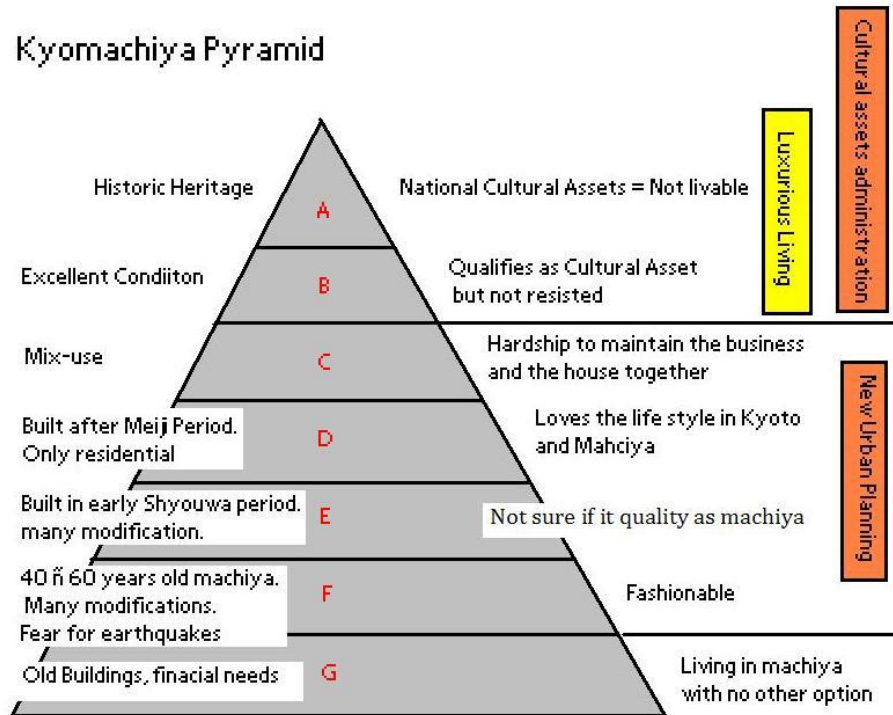


Figure 32: Pyramid⁴³

There is a wide variety of KyoMachiya, and people have tried to categorize them in a number of ways. We need to be able to talk about KyoMachiya in ways that the public will understand and to communicate why the KyoMachiya are historic assets of that we must preserve.

The Kyoto Center for Community Collaboration categorized the existing KyoMachiya based on size, A and B being the largest and G being the smallest. The KyoMachiya that fit in categories A and B are houses that are at least 70 tsubo in size. One tsubo is equivalent to the size of two tatami mats, which is approximately 81 square feet. Six-hundred-eight of the KyoMachiya fit in these two categories. Category A includes the KyoMachiya structures protected by the National Cultural Assets Administration. These KyoMachiya owners receive special governmental funding for renovation and maintenance. Category B includes the KyoMachiya that because of their scale and condition could be registered with the National Cultural Assets Administration, but whose owners decided against government assistance for

⁴³ Yoshifumi, 2008, Page 56. (Translated by the Author).

maintaining their KyoMachiya because they do not want to have to ask the government for permission to renovate their homes. If they were to accept the funding and the designation, then they would be obligated to accept and abide with conditions set up by the government. In other words, the government would retain the rights of approval for any type of renovation to the Machiya. For these owners, their KyoMachiya are an important part of their daily lives and not merely museums for tourists. When the need arises, they want the freedom to modify their homes to meet their changing needs, sometimes with modern conveniences.

The owners of categories E, F, and G surprisingly do not recognize their old timber structures as a historic KyoMachiya because of the condition, size, and age of their houses. Yoshifumi Yoneda said that these KyoMachiya owners often told him to search for better examples of KyoMachiya to study. These are the first groups of people that we need to convince that their homes represent the historic heritage and culture of Kyoto. We need to create greater public awareness and support for these structures if our goal is the preservation and revitalization of the Machiya.

Chapter 5: Why the KyoMachiya is a Suitable Model for the Revitalization of Kyoto

Seven Benefits

“Machiya townhouses are a form of architecture where traditional and modern innovations are combined in harmony. The following three points are noteworthy in relation to the uniqueness of the Machiya. First, the Machiya are inherently beautiful architecture. Second, the Machiya preserve important elements of traditional Japanese customs passed on from generation to generation. Third, the Machiya are connected with the natural environment. Urban living has always resulted in a certain amount of separation from nature. The original Machiya designers and residents understood this and made a special effort to create natural environments within the Machiya through the use of open-air gardens.”⁴⁴

In the next section, I will highlight seven points that make the KyoMachiya a suitable model for the revitalization of the Kyoto district:

1. The KyoMachiya provides commercial-residential uses
2. The KyoMachiya provides a connection to nature
3. The KyoMachiya provides a hierarchy of privacy in an urban setting
4. The KyoMachiya provides a compact and human scale structure
5. The KyoMachiya provides an opportunity to use eco-friendly, recyclable building materials
6. The KyoMachiya provides the people of Kyoto a “sense of place”
7. The KyoMachiya provides recognition as a historical and cultural asset

1. The KyoMachiya Provides Commercial-Residential Uses

KyoMachiya are commercial-residential, mixed-use developments that allow people to work and live in the downtown area. By not having to return to the suburbs or rural areas in the evening, businesspeople can help to keep the downtown area alive after 5pm. The commercial portion of the units can provide spaces for small, creative local businesses. Similar types of

⁴⁴ Kyoto Center of Community Collaboration. *Machiya Revival in Kyoto*. Kyoto: Mitsumura Suiko Shoin, 2009. Page 6.

businesses can create networks and maybe become a sort of specialty district. Such collaboration often leads to the development of sophisticated crafts and foods. For instance, highly sophisticated techniques for manufacturing kimono were developed in the Nishijin textile district.⁴⁵

Historian Jane Holtz Kay said people must live in the cities. For many American urban cities, this has not been the case. Although bustling with activities during the weekdays, many American cities turn silent during the nights and weekends as many of the workers leave the city for their homes in the suburbs or rural areas.

Many urbanites agree that mixed-use type structures are one of the key features that modern cities lack and that must be present to have an efficient, sustainable, and livable city. Jane Jacob stated that, “The district, and indeed as many of its internal parts, as much as possible, must serve more than one primary function; preferably more than two. They must serve the needs of the people who go outdoors on different schedules, in different places and for different purposes, but who are able to use many of the common facilities. On successful city streets, people must appear at different times.”⁴⁶

In most cities, land use ordinances regulate the presence or lack of mixed-use type buildings in the city. Cities that allow mixed-use, commercial-residential buildings have been shown to have more after-work and weekend activities in their downtown areas. Mixed-use buildings allow residents to work, live, play, walk, shop, eat, and communicate with neighbors and friends without relying on automobiles. Jacobs acknowledges that while some people might say that mixed-use developments are ugly, their benefits are appreciated. Many cities such as New York City and Honolulu have regulations encouraging new construction on main streets to be mixed-use developments.

Large developments and single-use streets reduce the number of walkable public places and promote the use of automobiles. Walkable streets increase attention to the street and to

⁴⁵ Kyoto Center of Community Collaboration. *Mahciya Revival in Kyoto*. Kyoto: Mitsumura Suiko Shoin, 2009. Page 24.

⁴⁶ Jane Jacobs, P152.

small local businesses. The use of automobiles supports large businesses with large parking structures and kills local businesses.

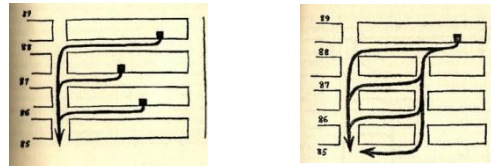


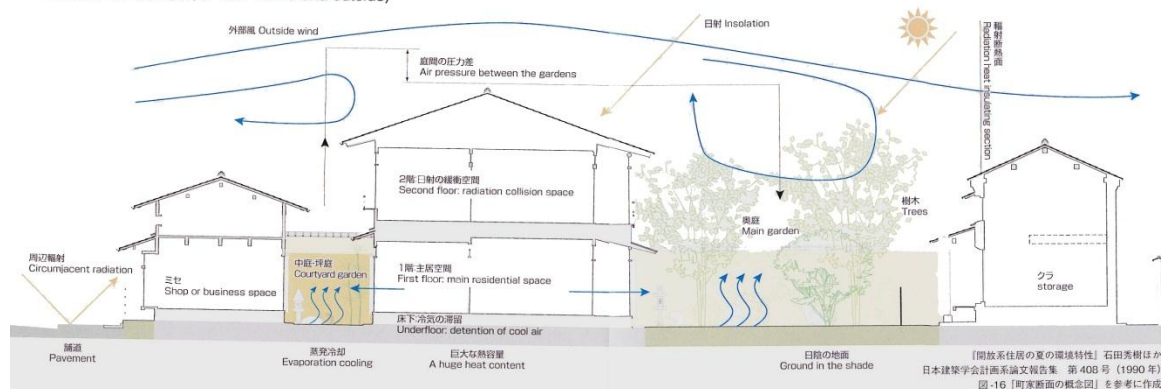
Figure 33: Large blocks and small blocks⁴⁸

2. The KyoMachiya Provides a Connection to Nature

The KyoMachiya has a strong connection to nature and uses the natural environment to improve the living environment. One of the favorite features of the KyoMachiya is the two small gardens known as *oku-niwa* and *tsubo-niwa*. *Oku-niwa* can be directly translated as “backyard garden,” which is larger than the *tsubo-niwa* and sunny during the day. *Tsubo-niwa* is the courtyard garden and is also called the *in-no-niwa*, which means “garden of darkness.” *Tsubo-niwa* is small and has minimum exposure to the sun. The temperature differences between these two gardens create air movement in the house. Water features are used in the *tsubo-niwa*. *Uchimizu* is the sprinkling water in the garden, and it creates a sense of coolness in the interior. In winter, the garden is covered with snow, and in fall, the leaves changing color are breathtaking. The two gardens full of plants allow a connection with nature in the Machiya.

町家断面の概念図（内外の気流）

Cross-section of Machiya (air flow inside and outside)



⁴⁸ Jacobs, Pages 179-180.

Figure 34: Natural ventilation system⁴⁹

Kyoto is surrounded by mountains on three sides that create cold winters and hot summers. Kyoto's winter is often described as "frozen to the bone cold" and its sapping summers are described as *kyo no abura deri* which means "hot and humid." The KyoMachiya is designed to adapt to the extreme weather conditions and changing seasons. For example, heavy, solid sliding doors used during winter are replaced with light, lattice sliding doors in summer that allow air to flow through the Machiya.⁵⁰ In the *Tsurezure-gusa*, a well-known essay written in 1330, Kenko Yoshida said, "When you build a house, consider the summer climate. You can live anywhere in the winter but the heat in poorly designed structures is unbelievable."⁵¹ The temperature can hit 100 degrees Fahrenheit with almost 100% humidity during August in Kyoto.

3. The KyoMachiya Provides a Hierarchy of Privacy in an Urban Setting

The long and narrow KyoMachiya created to fit the large grid system adopted from Xi'an, China with concepts of feng shui create a hierarchy in privacy. One reason why workers in urban areas desire to live in suburban areas is to find some privacy. KyoMachiya have public commercial spaces facing the street, but also private residential space in the back. Residential units can be as far as 90 feet away from any commercial activities and can provide peace and privacy within the urban setting.

4. The KyoMachiya Provides a Compact and Human Scale Structure

The collection of long and narrow KyoMachiya also creates compact and human scale structures, which promotes walkability. Not only does a walkable city have a positive impact on physical fitness, but it also allows people be more aware of their surroundings and creates opportunities to socialize and make connections with the community.

Cities should be developed for people and not for automobiles, and therefore should be built on a human scale. However, most American city blocks are designed for automobiles

⁴⁹ Kyoto Center of Community Collaboration. *Machiya Revival in Kyoto*. Kyoto: Mitsumura Suiko Shoin, 2009.

⁵⁰ Kyoto Center of Community Collaboration, 2009, Page 13.

⁵¹ Kenko Yoshida, Essay in Idleness: The Tsurezuregusa of Kenko. (New York: Columbia University, 1967) Chapter 55.

instead of for pedestrians. Crosswalks are too far apart from each other. The density of American cities is too low for pedestrian traffic. In addition, land division makes it impossible to walk to the next closest shop. “Not only is this unhealthy, but it also does not do much to create a sense of community or strengthen sense of place,”⁵² said Beatley. Beatley also said that the average American spends 86.9% of his time indoors, 5.5% in his automobile, and only 7.6% of his time outside.⁵³

Jacobs said, “Most blocks must be short; that is, streets and opportunities to turn corners must be frequent.”⁵⁴ By walking or by bicycling, people should be able to move about the city freely and easily. Desmond Morris, the British zoologist, stated, “Clearly, then, the city is not a concrete jungle, it is a human zoo.”⁵⁵ From a pedestrian point of view, the plan for the height of a building is not as important as the plan for how the building approaches the sidewalk. The plaza or shopping complex provides a human scaled environment as an enclosed urban space.⁵⁶ Plans for cities should require a good combination of open and enclosed public places.

5. The KyoMachiya Provides an Opportunity to Use Eco-Friendly, Recyclable Building Materials

KyoMachiya are eco-friendly structures. They use a lot of natural and local materials, recyclable building materials, and modular systems for flexible layouts and alterations. For example, most KyoMachiya use the standardized tatami mat size and the same modular system, which allow the materials to be shared and reused. The Japanese architect Kengo Kuma said that, “Le Corbusier said modular coordination is practical but I think the Machiya way is better, considering the recycling and resources.”⁵⁷ Kuma is studying Machiya and analyzing their sustainability. Several organizations collect materials from demolished Machiya to repair existing Machiya.

⁵² Beatley p157

⁵³ Klepeis, Neil, The National Human Activity Pattern Survey: A Resource for assisting Exposure to Environment, (CA: Lawrence Berkeley National Library, 2001)

⁵⁴ Jacobs, p178

⁵⁵ Desmond Morris, The Human Zoo: A Zoologist’s Study of the Urban Animal (New York, Kodansya Globe, 1969)

⁵⁶ Francis Tibbalds, Making People-Friendly Towns: Improving the Public Environment in Towns and Cities (New York: Taylor & Francis, 2000) Page 43.

⁵⁷ Kyoto Center of Community Collaboration, 2009, Page 83.

6. The KyoMachiya Provides the People of Kyoto a “Sense of Place”

The KyoMachiya is an exclusive structure to Kyoto, and it contributes to the “sense of place.” Sense of place is defined in many different ways, but Steel defines it as a “pattern of reactions that a setting stimulates for a person. These reactions are a product of both the features of the setting and aspects the person brings to it.”⁵⁸ Places with a strong sense of place will likely have good resource management, public participation in city planning, and promote well-maintained public spaces.⁵⁹

7. The KyoMachiya Provides Recognition as a Historical and Cultural Asset

Temples and gardens attract millions of tourists to Kyoto every year. The number of tourists has been reaching record levels, with 50 million in 2008.⁶⁰

In 1999, the World Tourism Organization (WTO) presented a “tourism vision of 2020.” The report said that in 1950, there were 23 million global tourists; by 1995, the number of tourists had grown to 560 million. The WTO has projected this number to grow to 1.6 billion by 2020.⁶¹ This makes tourism a 2 trillion dollar market, which can be compared with the GDP of the United Kingdom in 2009.⁶² The growth rate of world tourism is averaging 6.7% per year, which is higher than the growth rate of almost any country’s GDP. Japan, together with South Korea, sponsored the 2002 FIFA World Soccer Championship and realized the economic potential of tourism. In a 2002 speech, the Prime Minister of Japan, Junichiro Koizumi, said, “We will promote international tourism to revitalize the local economy.” In 2003, the Japanese government launched the “Visit Japan Campaign,” with a goal of attracting 10 million additional international tourists to Japan.

⁵⁸ Steele, Fritz. *The Sence of Place*. CBI Pub. Co, 1981. Page 12.

⁵⁹ Yuen, Francis K.O. *Social Work Practie with Children and Families* . New York: Haworth Social Work Practice Press, 2005.

⁶⁰ Kyoto City Government. Tourism plan of 2006 to 2010.

⁶¹ Nishimura, Yukio. *Konkou machizukuri - tourism and lalcal urban planing*. Kyoto: Gakugei Publication, 2009.

⁶² Central Intelligence Agency. "Counry comparison: GDP." *CIA.gov*. 2009. <https://www.cia.gov/library/publications/> (accessed April 26, 2010).

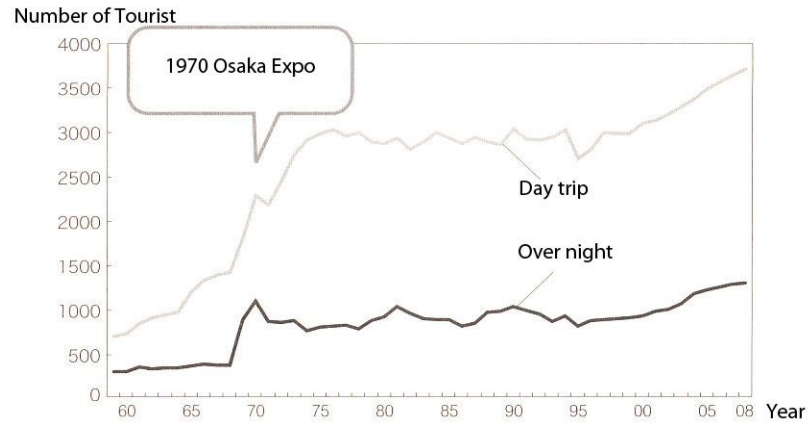


Figure 35: Day trip tourists and overnight stay tourists⁶³

Although the number of tourists to Kyoto has increased, most tourists plan day-trips rather than overnight trips to Kyoto.

The KyoMachiya is officially recognized as a historical and cultural asset of the city of Kyoto and Japan. In addition, Kyoto has fourteen World Heritage sites designated by UNESCO, which firmly establish Kyoto as a major cultural attraction for tourism to Japan. The KyoMachiya demonstrate a distinctive lifestyle and cityscape that attracts both locals and visitors to the Kyoto region. World Heritage sites are magnets for short-term visitor stays. The KyoMachiya are a genuine, creative, and relevant element of the culture and history of the city of Kyoto that will help visitors experience and absorb the wonderfulness that is Kyoto and make them want to experience it repeatedly. The Coliseum and Pantheon in Rome are great tourist attractions, but it is the rich culture, heritage, and history of Rome that led to its renowned food and arts that make Rome a successful tourist destination.

The KyoMachiya Boom

After hundreds of thousands of KyoMachiya were demolished over the years, the citizens of Kyoto started to look at the Machiya in a different light. The KyoMachiya are becoming a rare type of structure even in the historic city of Kyoto. More people are discovering and beginning to appreciate the significance of the simple and history filled, traditional timber KyoMachiya. KyoMachiya are slowly gaining attention, not only from Kyoto

⁶³ Yoshifumi, 2009. Page 18.

residents, but worldwide, and the consensus is that these historic assets of Kyoto need to be preserved.

Kyoto carpenter Shigeru Yamamoto said in his book, “When I first began my career as a *daiku*, the attitude toward Machiya was negative. It was just an old building that did not meet the modern style of living. Many Machiya were demolished or renovated with modern materials such as aluminum frame windows. We did not hear the word Machiya (町屋) often; my father called them chyouka (町家). However, cultural lenses change over the time as proven by history. I remember when miso soup was believed to be unhealthy at one point, because of the high sodium that it contains. Machiya are now called KyoMachiya, and many people favor them.”⁶⁴

Many of the 100-year-old KyoMachiya structures have been renovated for modern uses. Small businesses use the renovated KyoMachiya as restaurants, rental houses, art studios, offices, or simply as homes.

Together, the local Kyoto government and the national government have created an organization for the preservation of local and national cultural assets in Kyoto. This organization works with the owners of these cultural assets and has the authority to provide funds and low interest loans for renovations and maintenance. The organization can also provide special tax incentives and breaks on property and inheritance taxes. In exchange for these special considerations, the owners of these cultural assets must obtain approval or consultation from the organization before starting any renovations. The chart below describes five categories of funding for the preservation of the historic structures. As shown in the chart, a KyoMachiya resident can receive millions of yen towards renovation.

Fund	Kyoto city designated cultural	Kyoto city registered cultural	Nationally registered cultural	Scene important building	KyoMachiya fund
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⁶⁴ Yamamoto, Shigeru. *Kyoumachiya zukuri, 1000nen no chie (1000 years of knowledge of Kyomachiya)*. Tokyo: Shodensya, 2003. Page 12.

	assets	assets	assets		
Requirements	Technical, scientific Value	Tangible value to Kyoto	National tangible value	Importance to landscape	Intent to revitalize KyoMachiya
Regulation	<u>Law enforced</u> Any renovation must be approved.	<u>Law enforced</u> Most renovations need permits except structural supports, fire hazard improvements	<u>Law enforced</u> Need approval except for minor renovations that will impact less than ¼ of façade	<u>Law enforced</u> Most renovations need approval	<u>No law enforcement</u> Requires consulting
Amount of Fund	Half of the cost up to 10 million yen	1/3 of the cost up to 5 million yen	½ of the construction fee, no limit	2/3 of the cost up to 6 million yen	½ of the cost up to 6 million yen
Fire Regulation	Must meet fire regulations	Only with fire department warning	No	No	No
Property Tax Benefits	YES: 100%	No	YES: Up to 50% off	No	No
Land Price Tax Benefits	YES: 100%	No	Yes: 50% off	No	No
Inheritance Tax Benefits	YES: partial	YES: partial	Yes: Up to 30% off	No	No
Low Interest Loan	YES	YES	YES	No	No
Example	Fujimori-shrine	Daimaru villa	Minamiza	Yoshida-tei	Nakai-tei

Figure 36: Funds for KyoMachiya (as of November 1, 2008)⁶⁵

A number of local communities have gathered and formed non-governmental organizations, NGOs, such as KyoMachiya.net. KyoMachiya.net is the largest and oldest of these NGOs, and its main function is to protect and revitalize the KyoMachiya. KyoMachiya.net also oversees four non-profit organizations that provide services for the owners of KyoMachiya.

⁶⁵ Yoshifumi, 2008, Page 182.

Non Profit Organizations under KyoMachiya.net⁶⁶

1. KyoMachiya Saisei Kenkyu Kai

Founded in 1992, this organization collects data through surveys and research towards the preservation and revitalization of the KyoMachiya. This data is then shared with the owners of KyoMachiya and other interested organizations.

2. KyoMachiya Sakuji-gumi

This is a group of carpenters who specialize in renovating KyoMachiya, many of whom had left Kyoto to seek employment elsewhere. The organization brings these skilled carpenters together to share their skills with each other, to train the next generation of carpenters, and to introduce them to the KyoMachiya owners. The Araki Corporation is one of the largest contributors to this organization, and they have many carpenters who are skilled in building traditional Japanese wooden structures.

3. KyoMachiya Tomono Kai

This organization holds study sessions and field excursions for KyoMachiya owners and publishes a local newspaper for them.

4. KyoMachiya Jyohou Center

This organization promotes communication and information exchange among KyoMachiya owners and other organizations interested in the preservation and revitalization of the KyoMachiya.

The Current Landscape Policy

The scenic landscape district was created in 1930 to preserve major buildings and roads. In 1972, the nation's first City Ordinances on Urban Landscape were made to preserve special districts such as Geon Shimbashi. In 1973, new height zone restrictions were made which

⁶⁶ Kyomchiya.net. <http://www.kyomachiya.net/center/index.html> (accessed May 1, 2010).

limited new construction to 45 meters (135ft) or lower. In 1996, the scenic landscape district was expanded. Most importantly, the Japanese federal government passed the Regional Preservation Law in 2003, which allowed the local government to make decisions on urban planning without the involvement of national government.

The current urban policy in Kyoto was made in 2007. The Landscape Policy contains five categories, including the new height limitations for structures, building design regulations, surrounding scenery and vistaed view regulations, outdoor advertisement regulations, and finally funding to support KyoMachiya revitalization.⁶⁷

The first category further reduced the height limits that were established in the urban planning policy in 1973. Kyoto has lowered the roadside district height limit from 135 feet to 95 feet, and for buildings that are facing the front street in the commercial-residential district, from 93 feet to 45 feet. The new regulation has a huge impact on the view from the street level. They have reduced the height of commercial buildings by 50% from 1973. These buildings no longer tower over the Machiya, which has improved the overall cityscape.

⁶⁷ Kyoto City Government . *Kyoto city urban plan*. <http://www.city.kyoto.lg.jp> (accessed March 30, 2010).

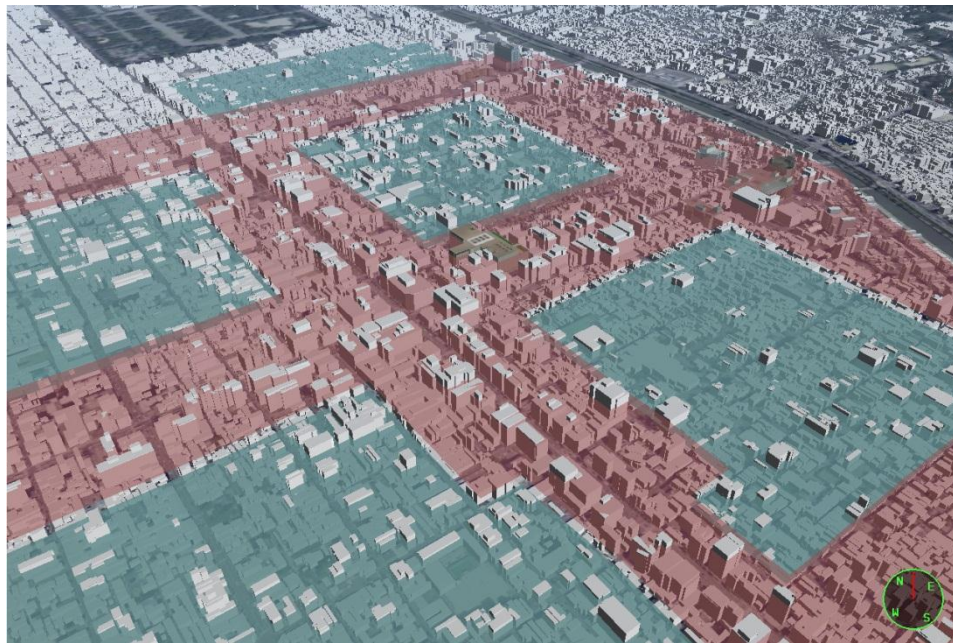
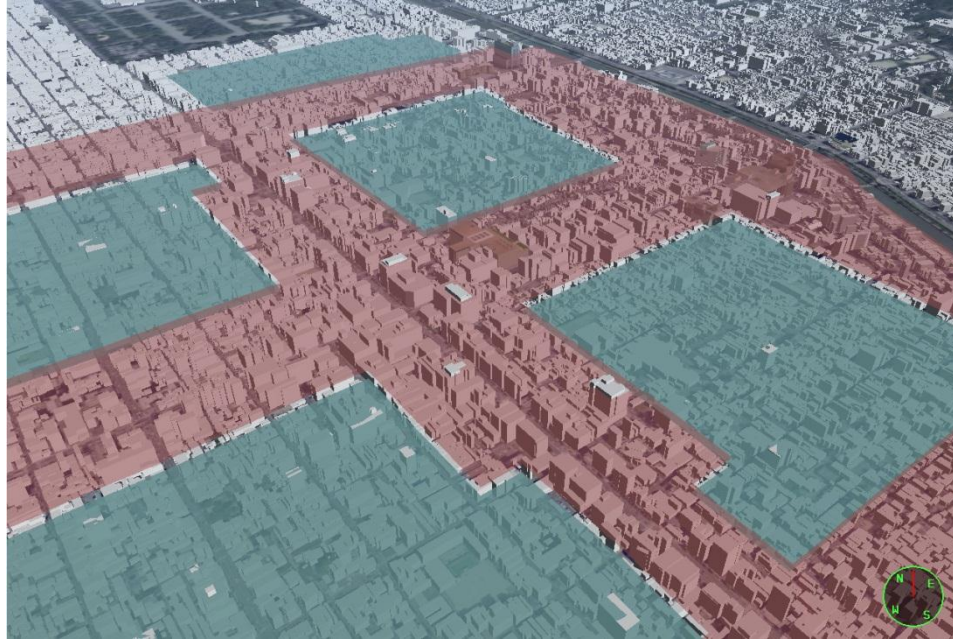


Figure 37: 3D GIS data of Central Kyoto⁶⁸

Figure 37 is showing how the new height limit affects the city. The figure above is showing the previous policy with 45m height limit on the red and 31m on the green. The figure

⁶⁸ Tatsumi, Kazuo. *Machiya Style Mutifamily Housing* . Kyoto: Gakugei, 1999.

blow is showing the new 2007 height limit with 31m on the red and 15m on the green. The figures are generated with 3D GIS by Ritsumeikan University in Kyoto.

The second category focuses on building designs and restricts the finishing materials and styles of newly constructed buildings. The policy states that roof tiles must be oxidized silver/copperplates either plain or blue-green, or if non-copper material, painted in matte gray or matte black. External wall material must be matte with the exception of glass and natural materials. Balconies are not to protrude from the walls of the buildings, with the exceptions of very low buildings; and parking spaces for automobiles and bicycles should be enclosed within gates. The effect is that the new constructions do not distract from the overall view of the cityscape, and do not negatively interfere with the enjoyment of the surrounding landscape.

Roof Palette	Roof tiles are in principle oxidized silver / copperplates either plain or blue-green / non-copper plates and other roof materials are in principle matte gray or matte black
External Wall Material	Material on major external walls are to be matte (with exception to glass and natural materials).
Balcony	Balconies are not to protrude from the wall of the building. However, low buildings, or places out of view from public spaces are not restricted.
External Wall Palette	The following palettes are not to be used on major external walls. However, unstained natural materials are not restricted. (1) Red hues with color saturation greater than 6. (2) Yellow-red hues with color saturation greater than 6. <abbreviated below>
Gates, Fences, Hedges	Parking spaces for automobiles and bicycles should be enclosed by a gate, fence or hedge in keeping with the cityscape.

The third category restricts constructions that would affect the surrounding scenery and vistaed views of important landmarks. The local government has divided the city into eight sections.

- The first section preserves large historical buildings including the fourteen World Heritage sites, Kyoto Imperial Palace Park, Shugakuin Villa, and the Katsura Imperial Villa.
- The second section preserves the street views of the main streets including Oike Street, Shijo Street, Gojo Street, Sanneizaka Street, and more.
- The third section preserves the waterfront views of the Hoti River, Uji River, and Biwa Lake sluice.
- The fourth section preserves the views of Japanese gardens.

- The fifth section preserves the mountain views of Higashiyama and Kitayama from the Kamo River and Nishiyama from the Katsura River.
- The sixth section preserves the view of the traditional bonfire festival in Kyoto.
- The seventh section preserves the lookout views of Togetsu Bridge.
- The eighth section preserves the bird's eye view of the cityscape.

Each section has detailed descriptions of new construction height and distance concerns and how the surrounding scenery and vistaed views are to be preserved. Thus if you were to take a photograph of one of Kyoto's cultural assets, there should not any other structures interfering with that view.

The fourth category restricts outside advertisement. Japanese cities are well known for large neon signage and shiny business advertisements. This will no longer be true in the historic city of Kyoto. There are restrictions on the size, height, and placement of all outdoor advertisements. Kyoto city is asking that all signage placed on top of buildings, and covering roads and windows be removed or relocated to preserve the beautiful cityscapes. The law applies immediately to new constructions and existing buildings have a six-year waiver period.

The fifth category addresses threats to the Machiya by creating a fund supporting the cost of their renovation and maintenance. Currently, the program is only able to support the renovation of fifteen to twenty Machiya per year. While the city is losing hundreds of Machiya a year, the establishment of the Machiya revitalization fund represents the government position that the Machiya are cultural assets of Kyoto that must be preserved for future generations. The program has encouraged more people to join in the effort to renovate and improve the conditions of the Machiya. Some organizations have started raising funds so that they can build awareness and thereby increase the funds available for renovating more Machiya.

KyoMachiya define the city of Kyoto and are cultural assets. Many have already been destroyed and replaced with glass and concrete high rises, which are more profitable to the landowners. However, the citizens of Kyoto have realized that the KyoMachiya are something that they should preserve and protect for future generations. While communities that support the KyoMachiya are growing, the chances of KyoMachiya surviving over the next fifty years are still relatively small. Most residents do not value their homes as historic structures. The houses are old. For the ordinary Machiya, there are no tax breaks or benefits for maintaining them. As

shown in a previous chart, the tax benefits are only for larger historic structures and not owners of the smaller structures who need financial help.

Another problem is the rising popularity of the KyoMachiya and the so-called “KyoMachiya boom.” Sometimes, people with no knowledge of KyoMachiya purchase them and proceed to modify them in disrespectful ways. Widespread education about KyoMachiya and local demands for their preservation and revitalization are important steps that need to be taken. Kyoto will continue to lose its cultural assets unless the local community puts a stop to it.

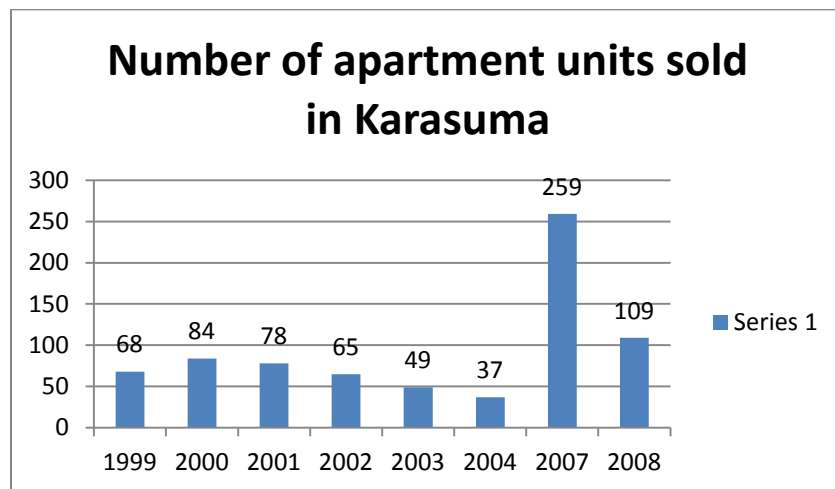


Figure 38: Number of apartment units sold in Karasuma⁶⁹

The current urban policy initially promoted more apartment developments as shown in Figure 37. Developers rushed to build apartments before new regulations that would reduce the height limit by 50% took effect.

⁶⁹ Kakakudotcom. *Masion DB*.

Chapter 6: Designing a Multifamily KyoMachiya for Kyoto

KyoMachiya Style

“Machiya style multifamily housing is not just an apartment development that incorporates the Machiya look in the façade. It respects the regional culture and has a strong social connection with the neighborhood. Machiya style housing is not a matter of capturing the materials or the shape of the KyoMachiya, but rather, 1,200 years of knowledge and the healthy relationship that KyoMachiya has with the city.”⁷⁰

Most multifamily housing developments in Kyoto ignore or pay minimal attention to their surroundings. However, the number of complaints filed to the city has been increasing. There were 104 complaints regarding apartment developments in 1979, 231 in 1986, and 290 in 1988.⁷¹ Taller apartments are more likely to have claims as shown in Figure 38. Taller, larger apartments are more likely to have an impact on the natural light, wind, and television and radio signals that affect neighbors.

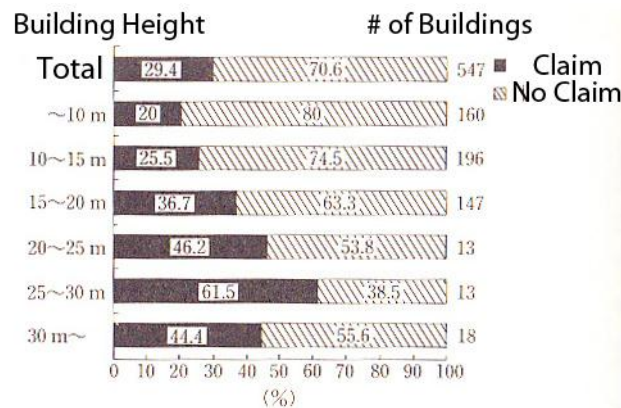


Figure 39: Number of claims filed for apartment developments

⁷⁰ Tatsumi, Kazuo. *Machiya Style Multifamily Housing*. Kyoto: Gakugei, 1999. Page 141.

⁷¹ Tatsumi, Kazuo. Page 30.

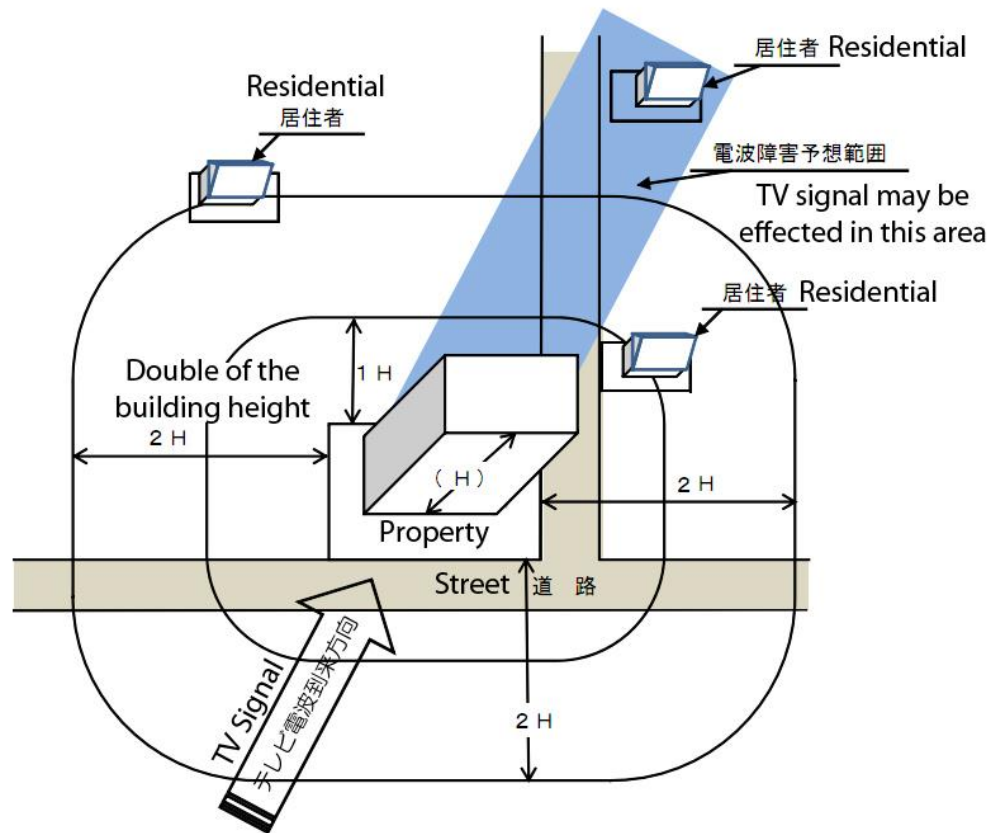


Figure 40: Kyoto apartment design guidelines⁷²

Architecture law only addresses minimum safety requirements. Civil law requires that the developers of high-rise buildings inform property owners who own property within a distance of twice the project building height of their plans. However, developers who want to make maximum profit out of the property and neighbors who want to preserve their living conditions and cityscape are often in conflict. The city government can provide a space for developers and neighborhood boards to discuss and negotiate new projects. However, the city government has no power to stop the project or construction if the project meets architecture laws.⁷³

⁷² Kyoto City Kita Ward, <http://www.city.kita.tokyo.jp>.

⁷³ Kyoto City Kita Ward, <http://www.city.kita.tokyo.jp>.

Case Studies

1) An eleven-story apartment development in Taishiyama cyo



Figure 41: Apartment in Taishiyama⁷⁴

The building is a typical high-rise that is hated by KyoMachiya residents. This eleven-story apartment building is the maximum building height in Taishiyama-cho in central Kyoto, where apartment development was not welcomed. The Taishiyama community saw high-rise development as a predator that takes natural light and ventilation away and brings strangers that do not interact with the neighborhood at all.

⁷⁴ Tatsumi, Kazuo. *Machiya Style Multifamily Housing*. Kyoto: Gakugei, 1999. Page 106.

This neighborhood board and the developers were able to reach some compromise, but it was not a perfect solution to all issues. The board got a boost in membership and supporters for their Gion Matsuri, but the eleven-story apartment building has diminished the quality of life for some of the neighbors and destroyed the cityscape. The building and security doors disconnect the units in the apartment from the street.

2) Kitano Rakuyukan: Machiya style multifamily housing



Figure 43: Kitano Rakuyukan (Google image)

Apartment buildings in Taishiyama-cho revitalized the community, but did not solve problems in form. Tokuichi Yashimura, who is an architect, university professor, and active KyoMachiya community leader, designed a KyoMachiya style multifamily housing structure in central Kyoto. The project goal was to build a large apartment that shares the qualities of KyoMachiya and that would be welcomed by the neighborhood. The bottom floor has two commercial spaces that face the street and a driveway for two parking stalls in the back. A large courtyard is in the middle of the building.

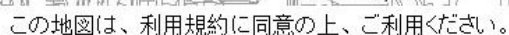


Figure 44: Map of Kamugyoku

Kamikyo-ku

Property size: 543.5m²

Built: 1996

Number of units: 12

Number of Floors: 5

Area: 323.6m^2



FAR: 194%

Price: 40,400,000 – 73,900,000 Yen (1996) <http://www.onyx.dti.ne.jp/~sissi/invest-2-434.htm>
18,880,000 Yen – (2006)

This building was named the best example of Machiya style multifamily housing in 1996

This project followed the twelve Machiya style multifamily housing design guidelines created by a Machiya style multifamily housing research organization.

a) Relationship with the Traditional



12 categories	Application to Machiya
<p>(1) The building must be sensitive to the conventional environment.</p>	<p>Designed to fit into the traditional Kyoto cityscape.</p>  <p>Figure 45: Rakuyukan⁷⁸</p>
<p>(2) The building should help solve existing problems in the neighborhood.</p>	<p>The 3rd-5th floors are set back from the street to have less impact. Building mass is designed so that it will not cast shadows over the surrounding neighbors, and openings are designed so as not to disturb the privacy of the neighbors.</p>  <p>Figure 46: Rakuyukan Façade⁷⁹</p>
<p>(3) The building development must involve the local community from the planning stages.</p>	<p>Commercial spaces on the first floor increase interaction with the surrounding community.</p>

⁷⁸ Hiroshi, Amano. *RST Kyoto Apartments*. 2009 - 2011. <http://www.rst-chain.com>.

⁷⁹ *Kyoto City Scenery and Machizukuri Center*. n.d. <http://machi.hitomachi-kyoto.jp>.

(4) The building must blend in with the local community.	Tight narrow entrances replicate the narrow streets in Kyoto.
----------------------------------------------------------	---------------------------------------------------------------

b) Streets and City Spaces

(5) The building façade must have continuity with the surroundings and contours to allow shadows.	First floor is flush with the surrounding buildings.
(6) The building must have similar scale to the conventional houses.	<p>The 3rd-5th floors are set back to reduce the scale of the building.</p>  <p>遠方から上層部を望む</p> <p>Figure 47: Rakuyukan Perspective Elevation⁸⁰</p>
(7) The building must be interactive with the ground floor.	<p>Stairs are open to the courtyard to encourage human interaction.</p>  <p>Figure 48: Rakuyukan Courtyard⁸¹</p>
(8) The building must create a healthy relationship between pedestrians and	Driveway is paved to be pedestrian friendly.

⁸⁰ Institute, Machiya Style Multi-Family Housing Research. Machiya Style Multi-Family Housing Guide Book. Kyoto: Kyoto City, 1996. Page 67.

⁸¹ Multi-Family Housing Museum. August 17th, 2000. <http://www.housing-museum.com>.

automobiles.



Figure 49: Rakuyukan Entrance⁸²

c) Learning from the Traditional

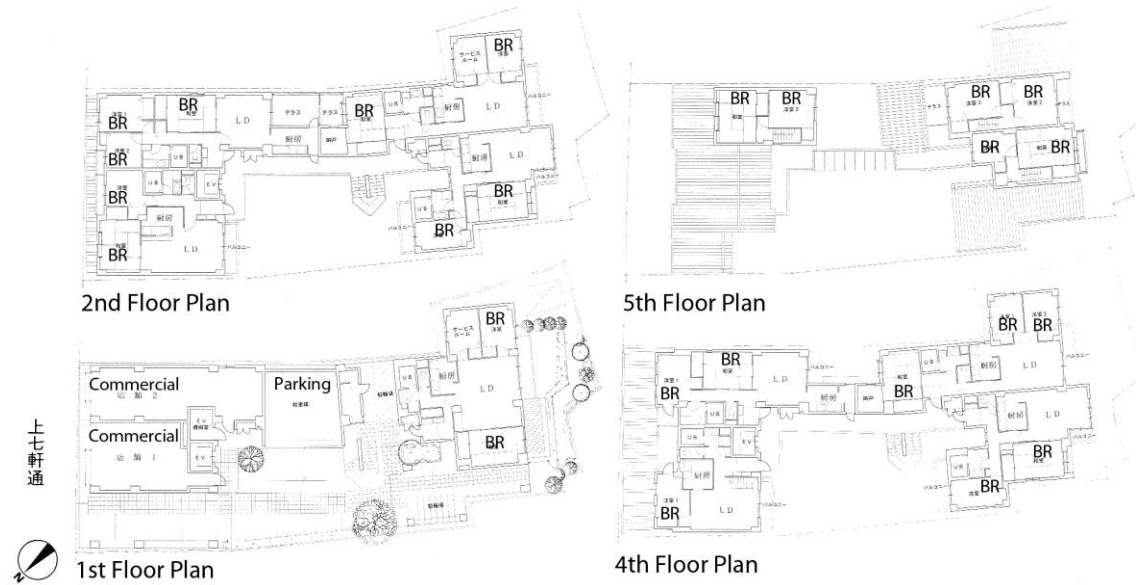
9) Each unit in the building must be able to be renovated and repaired independently.	Front doors face the courtyard for easy access.
10) The building must be able to monitored for security.	Street-facing commercial spaces and courtyard-facing corridors and stairs make the building easy to monitor.
11) The building must have a variety of unit types to adjust to individual living styles.	Variety of unit types provided.
12) The building must consider the environment.	Large courtyard and terrace on each unit provide chances to appreciate the seasonal changes.

This project sought to incorporate the eight most appealing aspects of KyoMachiya. This project is a mixed-use type building that optimizes the narrow property, integrates nature, includes units that can be renovated individually, and preserves some of the sense of place. The architect and the developer had ten meetings with the neighborhood and made five changes before building the project.

- 1) The neighborhood board appreciated the façade treatment that had characteristics of the traditional KyoMachiya, but was concerned that the south facing wall did not share the same characteristics. The building was redesigned and the fourth floor was set back further.
- 2) Some of the bay windows were deleted from the plan because they were too close to the neighbors.
- 3) Blind window treatments were provided for the windows facing the front street.
- 4) Wooden traditional blinds were provided for the commercial units.

⁸² Hiroshi, Amano. *RST Kyoto Apartments*. 2009 - 2011. <http://www.rst-chain.com>.

- 5) Concrete walls were provided next to the water pump to reduce noise.



Floor plans of the Kitano Rakuyukan⁸³

However, there was no control over what could be built in the commercial spaces. One business owner bought two of the commercial spaces and removed the wooden blinds. The commercial owner did not live at the site and had no intention of integrating the commercial and living spaces. The design of the building is not nearly as sophisticated as the KyoMachiya, and there is no transitional space within the units from which to appreciate nature.

Design Guidelines for Modern KyoMachiya

This set of design guidelines is a successor to the twelve Machiya style multifamily categories.

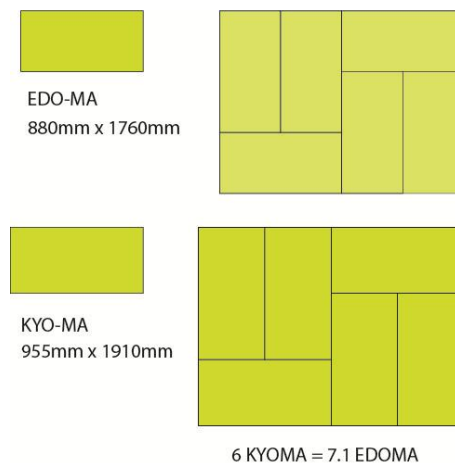
- 1) Revitalize the community

⁸³ Institute, Machiya Style Multi-Family Housing Research. Machiya Style Multi-Family Housing Guide Book. Kyoto: Kyoto City, 1996. Page 67.

The local community must be involved before, during, and after the development. The new residents must be involved with the local neighborhood board in continuing and passing on traditions and Matsuri onto the next generations. The goal is to create a neighborhood that is friendly and that looks out for its residents, especially children and the elderly. The entrance of each unit must be accessible from the street. The closeness of the KyoMachiya creates a strong community connection and sense of security. The elderly favor the lifestyle associated with the KyoMachiya because of the convenience of urban life and the security that they gain from the community. Modern apartments isolate them by creating a wall between the street and the building.

2) Ensure appropriate density

Traditional KyoMachiya are too large for small modern families. Restoring the population and density will help revitalize the economy and social networking. Compact cities with sufficient density will promote walkable neighborhoods and use of public transportation, which will increase the attention to the streets. However, smaller units do not necessarily mean smaller rooms. Tiny Edoma tatami mats should not be used; traditional Kyoma tatami mats will provide more space.



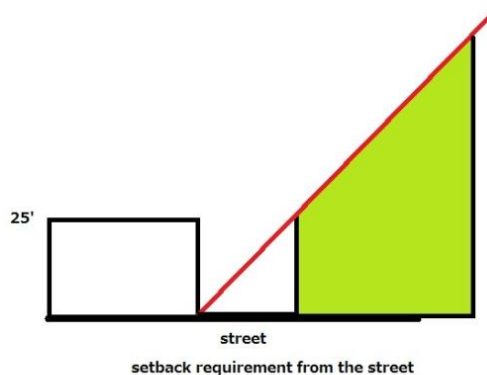
3) Ensure residences, businesses, and entertainment venues on the same street

Traditional KyoMachiya were *Omoteyazukuri*, with commercial space facing the front street. Mixed-use buildings keep the street lively throughout the day and commercial activity creates connections between the building and the street.

Meanwhile, neighborhood boards must consider the potential impact of new commercial businesses especially when they are large international or domestic chains. They must also insist that the commercial owner live in the building.

4) Don't negatively affect neighbors' living conditions

Developers must consider how the new building will affect privacy, wind, and natural light. The façade must be set back once it is 25 feet above ground. The base of the façade (the first 25 feet) cannot be set back further than the surrounding houses.



5) Create a suburban feeling within an urban setting

Traditional walk-up apartments have corridors on one end of the building, which only allow minimum interaction with nature and take little advantage of natural ventilation. Modern KyoMachiya will borrow from the traditional KyoMachiya plan to allow a strong connection with nature. Developers should also create a hierarchy in privacy by making use of the narrow and deep property.

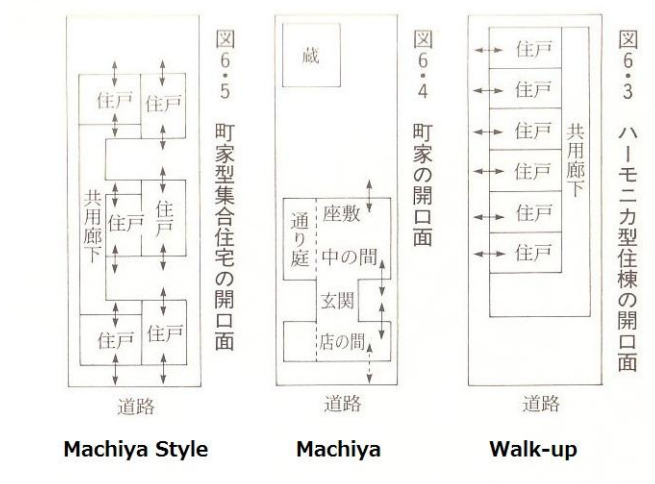


Figure 50: Floor plan comparison⁸⁴

6) Ensure flexibility

Traditional KyoMachiya have flexible floor plans with sliding doors to accommodate different types of events and family structures. Each unit must be able to be renovated independently.

7) Allow new innovations

New KyoMachiya must respect innovation as much as they respect their 1,200 years of tradition.

⁸⁴ Tatsumi, Kazuo. *Machiya Style Multifamily Housing*. Kyoto: Gakugei, 1999. Page 146.

Chapter 7: Designing a Prototype Multifamily KyoMachiya

Selecting Site and Project Scale

The goal for this chapter is to design a prototype multifamily KyoMachiya by applying the seven guidelines from the previous chapter. To have a successful prototype, the site used must be comparable to the most common property conditions in Nakagyoku where the most apartment developments take place.

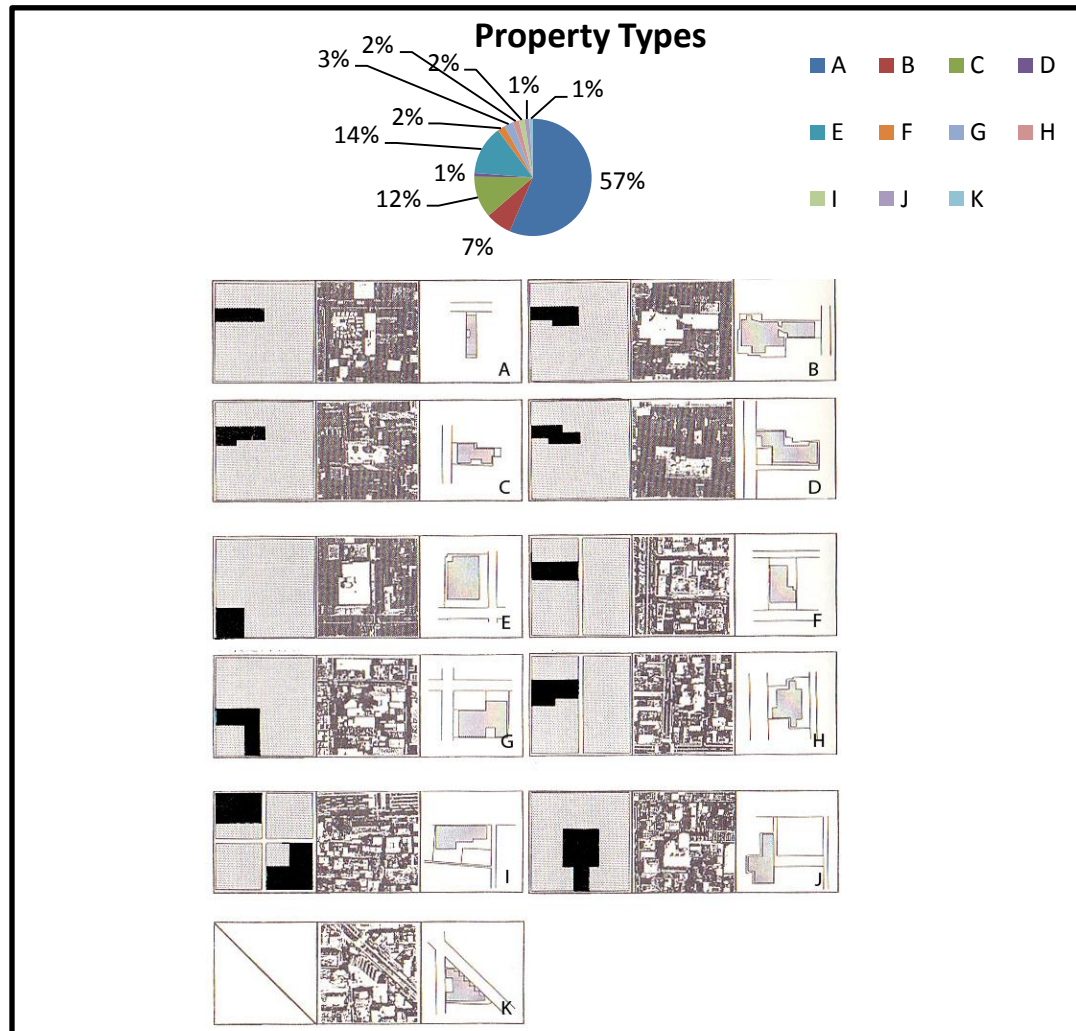


Figure 51: Property types⁸⁵

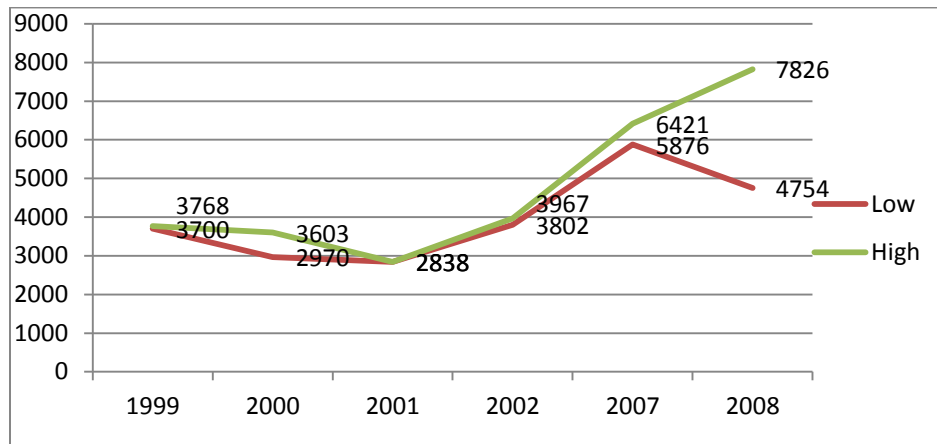
⁸⁵ Tatsumi, Kazuo. *Machiya Style Multifamily Housing*. Kyoto: Gakugei, 1999. Page 35.

The KyoMachiya may only represent a small percent of the building types in Kyoto, but the traditional long and narrow parcels of land on which most KyoMachiya are built is still the dominant property type in Kyoto as shown in Figure 50. Figure 51 analyzes average properties in Shimo-kyoku and Naka-kyoku. It also shows that property value has been dropping continuously.

Single Family Housing	Other
Average Lot size: 103 m ² Average FAR: 200% Average Price: \$249,000 Average Price difference between 2009 and 2010: -3.62%	Average Lot size: 219 m ² Average FAR: 492% Average Price: \$642,650 Average Price difference between 2009 and 2010: -7.42%

Figure 52: Properties on the market (2010)⁸⁶

Another study shows that the population in Karasuma, Nakagyoku has grown by 20% between 1995 and 2005, and that the average value of apartment units has been increasing. The demand to live in central Kyoto has also been increasing. In 2008, 8,068 Kyoto city residents moved out of the Kanto area, but at the same time, 2,801 from Kyusyu and 5,300 Cyubu moved into Kyoto.⁸⁷



⁸⁶ Prefecture, Kyoto. *Property Value in Kyoto*. 2010.

⁸⁷ City, Kyoto. *Statistics Kyoto City*. 2003 - 2011.

Figure 53: Average price of apartment units in Karasuma⁸⁸

New Apartment Market in Central Kyoto

Shimogyoku	Station	Number of Units	Number of Parking	Unit Size and Price
Lions Shijo-Karasuam	2min – Shijo 4min – Karasuma	48 (664m2) 10F	Car: 2 (Guest) Bicycle: 54 (150 – 250) Motorcycle: 6 (2500)	1LDK – 3LDK 45.18-82.02m2 Price: NA
Libio Shijo-Omiya	4min – Omiya 4min – Shijomiya	49 (1,177m2)	Car: 10 + 2 (Guest) (18000 – 20000) Bicycle: 49 (100) Moped: 2 (1000)	1LDK – 2LDK+S 46.27-65.97m2 22.5m -49.9m Yen
Cyukyoku				
Eagle court Karasuma	4min – Shijo 4min – Karasuma	39 (486.39)	Car: 2 (Guest) Bicycle: 40 (500) Moped: 4 (2000)	1LDK – 3LDK 41.97-71.03m2 19.8m-48.4m Yen
Brans Kyoto Oikedor	6min – Karasumaoike 4min - Nijojomae	29 (298.65)	Car: 1 (Guest) Bicycle: 58 (NA)	1LDK – 3LDK 41.53-71.45m2 26.9m-49.4m Yen
The Residence Kyoto	4min – Karasuma 4min – Shijo	83 (1828.6m2)	Car: 31+ 2(Guest) + Handicap Bicycle: 83 (400-600) Moped: 4 (2000)	2LDK – 5LDK 77.06-183.51m2 44.88m-169m Yen
Inicia Cyukyo	4min – JR Enmachi	72 (2241m2)	Car: 35 + 4 Guest (12000 – 15000) Bicycle: 35 Motorcycle: 2 Moped: 4	3LDK 78.87m2 40m Yen
Presans Nijo	7min – Sub Nijo 8min – JR Nijo	46 (1655.43m2)	Car: 26 + 1 Guest + 1 Handicap Bicycle: 92 Motorcycle: 3 Moped: 3	3LDK 63.99-75.98m2 24.36m-35.67m Yen
Ukyoku				
Soriche Okazaki	12min – Sub Higashiyama 12min – Jingu	18 (580.93m2)	Car: 4 + 1 Guest Bicycle: 26 Moped: 7	

Figure 54: New apartments⁸⁹

Most of the new apartments listed in Figure 53 are large because they were permitted before the current building height policy took effect. The study clarifies the sizes and type of units that the current market demands, the parking conditions, and the number of units that can be built per total land area.

⁸⁸ Kakakudotcom. Masion DB.

⁸⁹ Kakakudotcom. Masion DB.

Range of Sizes and Pricing of New Apartments in Central Kyoto

Unit Type	Size	Price
1BR	41.53 – 46.27m ²	19.8 – 26.9 million yen
2BR	65.97 – 77.06m ²	44.88 – 49.9 million yen
3BR	71.03 – 82.02m ²	63.99 – 82.02 million yen

The units in new apartments are larger (average size 41 to 82 square meters) than in twenty-to-thirty-year-old apartments. Some thirty-year-old, two-bedroom units that were built during the population growth era are less than 40 square meters in Kyoto. However, since Japan has 6 million unoccupied houses, is experiencing shrinkage in population, and has decreased in property value over the last twenty years, developers could afford to build larger units. The numbers in Figures 55 and 56 indicate the size of the room. 1 = 1.55m²



Figure 55: 40m² 2-bedroom unit built in 1981⁹⁰



⁹⁰ Homes. *Real-Estate Homes*. 2010.

Figure 56: 60m² 2-bedroom unit built in 2010⁹¹

Average parking per units: 1000m² and under

Car	.075 per unit
Bicycle	1.328 per unit
Motorcycle	.127 per unit

Smaller apartments that are built on narrow property cannot afford to have automobile parking within the building. As a result, Kyoto city has the second highest parking fees in the nation and many KyoMachiya have been demolished to make space for income producing parking lots. A car sharing system, which is an affordable rental car system that normally charges a modest monthly fee and a hourly usage fee, is becoming popular, but has room for improvement. It is also not appropriate to have a parking garage on every building because the valuable street-facing wall that could be used for commercial activity will be covered with garage doors. The combination of a public parking and car sharing system is a possible solution to keep the streets alive and to preserve the traditional KyoMachiya style.

⁹¹ Homes. *Real-Estate Homes*. 2010.

The Site

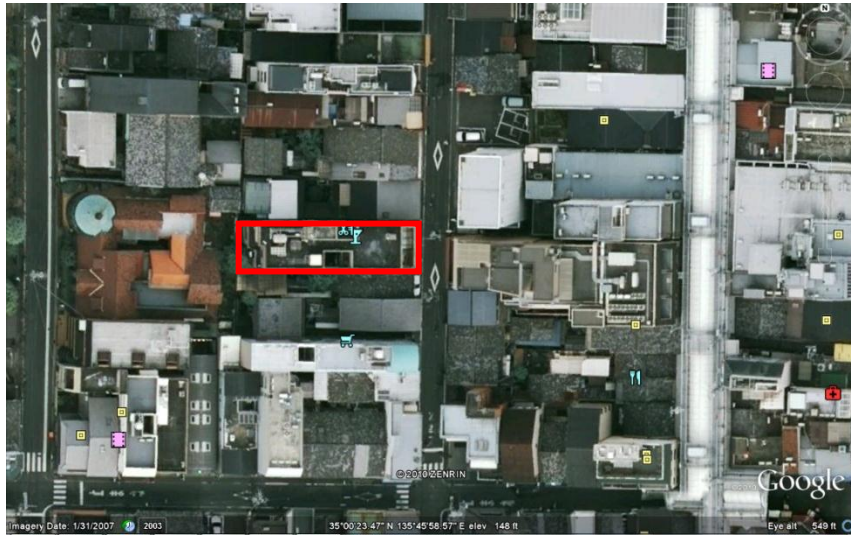


Figure 57: Site image (Google Earth)



Figure 58: Street view of the site (Google Earth)

Location: Nakagyoku
Transportation: 390m from Hankyu Karasuma Station
Value: 517,000 (-7.6% from 2009)
Size: 241m²
Zoning: Commercial/Residence, City Core, Historic District
Floor to Area Ratio (FAR): 400%

This site is typical of central Kyoto. The property is long and narrow, rectangular, and has one side facing the street. It is clearly a KyoMachiya property. The property is close to the average size of commercial property in central Kyoto and suitable for a mid-rise apartment

building. The site is located in the heart of Nakagyoku where most of the new apartment buildings are being built; Nakagyoku has the highest population growth in Kyoto city. It is in the Oike elementary school district, which is the largest elementary school in Kyoto with 1,200 students. It is located behind the Nishiki market strip and surrounded by small local boutiques operated by young entrepreneurs. The site is sandwiched between four KyoMachiya and across from a mid-rise building.

The site is in the Iseyacho neighborhood, which had 48 households and 112 residents in 2010.⁹²

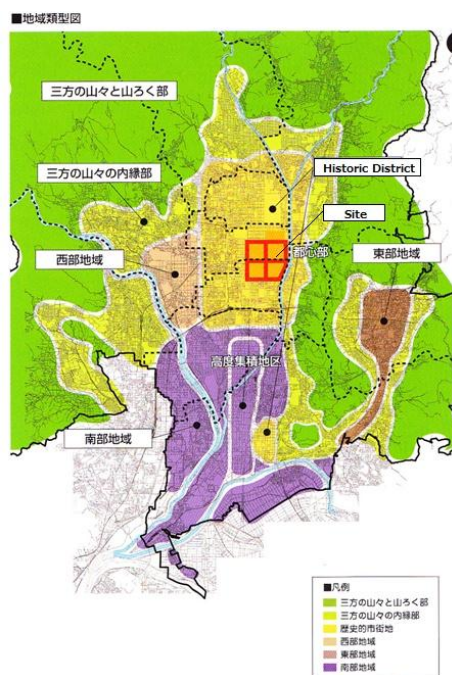


Figure 59: Land use in Kyoto⁹³

The site is in the city core within the historic district. It is also in the mixed-use development area. The building height limit is 15 meters and the building roof may go up to 18 meters. Roofs must be covered with traditional Japanese tiles or copper. The tiles should be dark gray and the copper should be green or blue. Reflective materials cannot dominate the

⁹² Ward, Nakagyoku. *Nakagyo Ward Office*.

⁹³ Ward, Nakagyoku. *Nakagyo Ward Office*.

façades. Glass and natural materials are allowed. A balcony may not extend over the façade, and the façade cannot be bright red or yellow-red. Parking must be covered with a gate or street walls to keep the building flush with the conventional building façades. The FAR for this site is 400%. Buildings that exceed 300% in FAR must consider how the usage of the building will affect the surrounding environment.

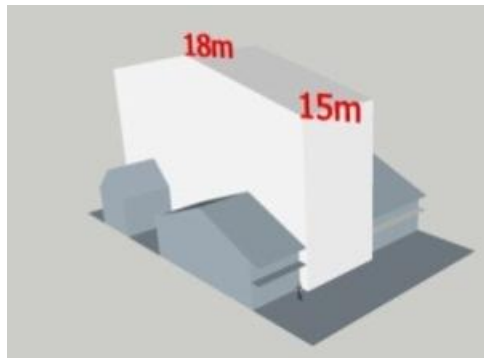


Figure 60: Massing of buildable height

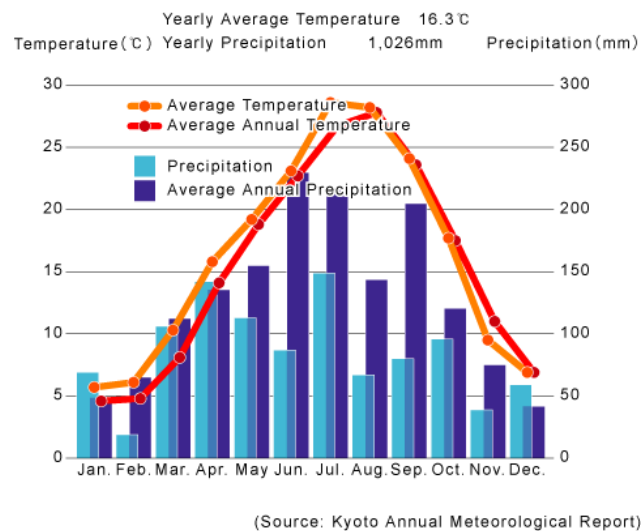


Figure 61: Climate data⁹⁴

⁹⁴ Kyoto City Government. *Kyoto city climate data*.

	Wind Speed (m/s)					
	Average	Direction	Number of days			
Analyzed year	75' – 00'	71' - 00'	> = 10 m/s	> = 15 m/s	> = 20 m/s	> = 30 m/s
January	1.4	West-northwest	0	0	0	0
February	1.6	North-northwest	0	0	0	0
March	1.7	Northwest	0	0	0	0
April	1.8	North	0	0	0	0
May	1.8	North-northeast	0	0	0	0
June	1.7	North-northeast	0	0	0	0
July	1.7	North-northeast	.1	0	0	0
August	1.9	North-northeast	0	0	0	0
September	1.6	North	.3	0	0	0
October	1.4	North	.1	0	0	0
November	1.3	North	0	0	0	0
December	1.3	West-northwest	0	0	0	0
Annual	1.6	North	.5	0	0	0

Figure 62: Wind chart⁹⁵

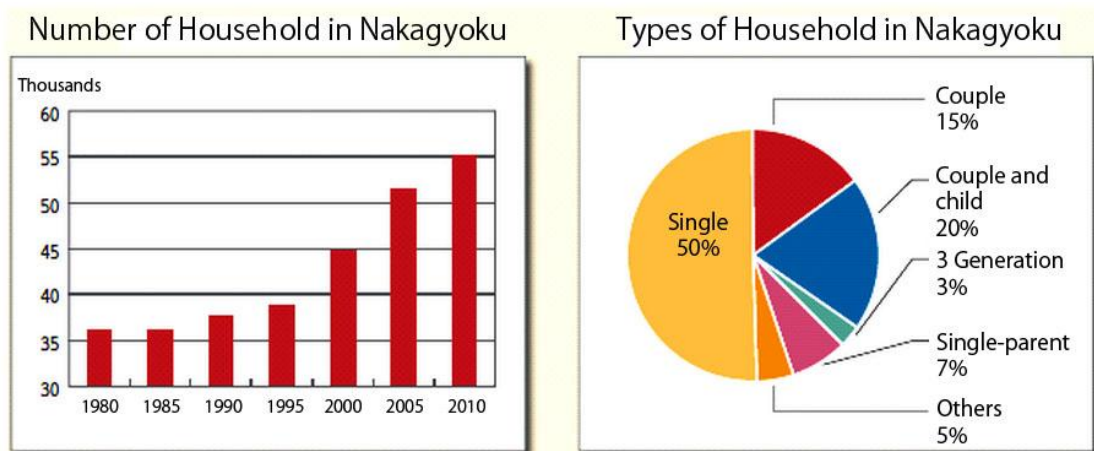
Kyoto has humid and warm summers and relatively cold winters. There is modest wind blowing from the north throughout the year.

⁹⁵ Japan Meteorological Agency. <http://www.data.jma.go.jp>

Program

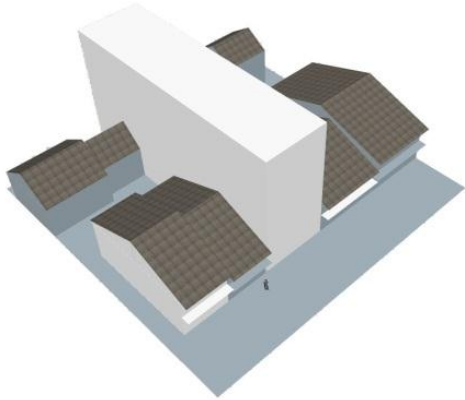
The building will contain one commercial space and seven residential units. It will have five floors and be constructed with steel. The commercial space is 60 square meters and the seven residential units range from 56.69 square meters to 124.7 square meters. The commercial space is connected to the two-bedroom unit above to promote local commercial business. According to existing household types in Nakagyoku, at least 50% of the units should be one-bedroom as 50% of all households in Nagyoku are individuals. The size of the household continues to drop in Nakagyoku while the total number of households is growing. There are thus four one-bedroom units, one two-bedroom unit with a commercial space, and two three-bedroom units in this project. Each unit will have at least one bicycle parking space.

Figure 63: Households in Nakagyoku⁹⁶

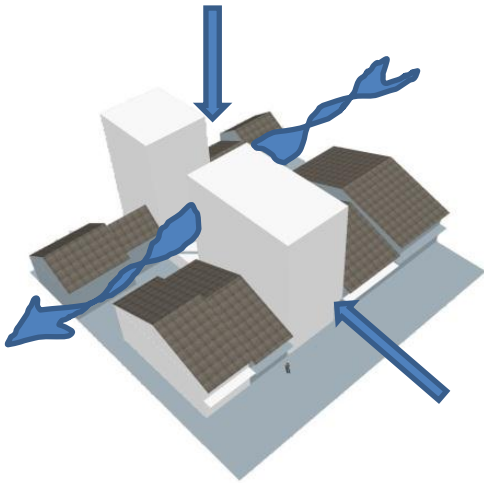


⁹⁶ Ward, Nakagyoku. *Nakagyoku Ward Office*.

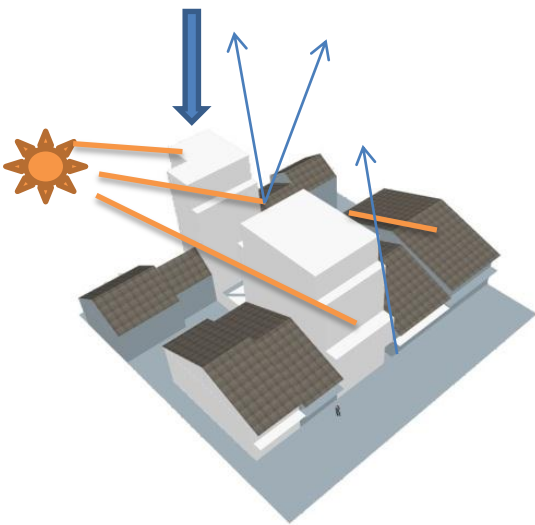
Design Analysis: Massing



1) Five stories: The maximum buildable height is 18m.



2) A large courtyard is created to provide natural ventilation to the units as well as air to the surrounding buildings. The courtyard is accessible to the public by a long narrow corridor, spatial characteristics of a KyoMachiya.



3) Set back and backyard

Setbacks are made to minimize the impact to the street level massing and to bring natural light to the ground level. The backyard is created to provide natural lighting, ventilation, and nature.

Designing with Modern KyoMachiya Design Guidelines

1. Revitalize the Community

- Meet with the community
 - Meetings with the neighborhood board from the planning stage will minimize conflicts and provide opportunities to address any concerns regarding the impact on the community.
- Make each unit accessible from the street
 - The public is able to access the front door of the each unit just like KyoMachiya.
- Create semi-public social space
 - The courtyard that is open to the public creates a great social space for the residents and their neighbors.

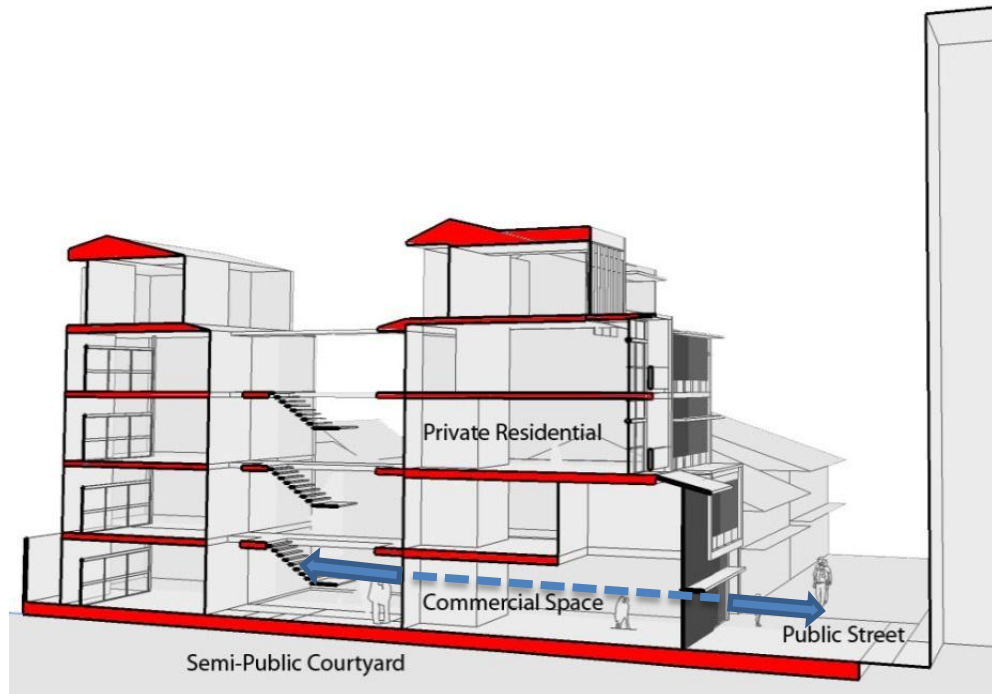


Figure 64: Perspective section

2. Ensure Appropriate Density

- Maximize profit for the developer
 - The building is built up to the maximum buildable height.
 - Seven residential units and one commercial space are provided.
- Avoid conflicts with neighbors
 - The building mass is broken down and a large courtyard is provided to minimize the impact on the street and to preserve the natural light and ventilation of

existing buildings. Low-rise KyoMachiya structure creates human scale streets and compliments each other.

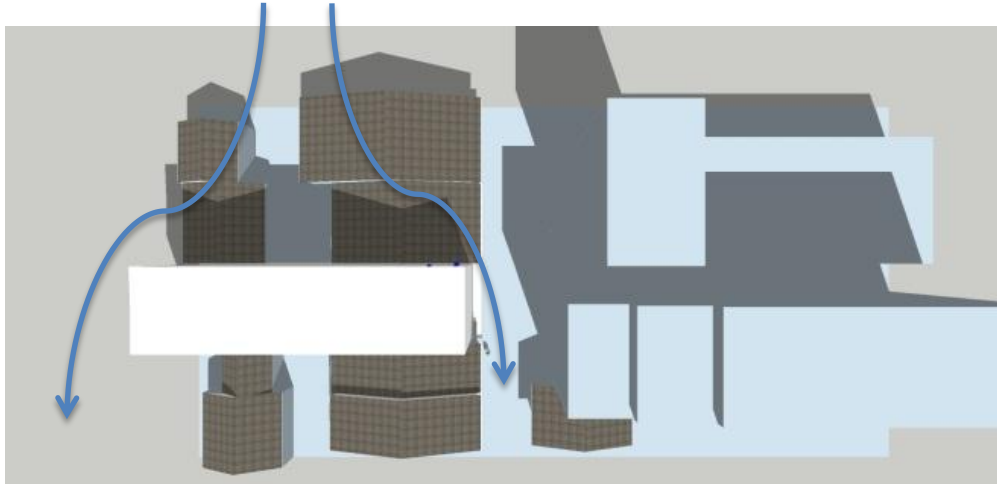
3. Ensure Residences, Businesses, and Entertainment Venues on the Same Street

- Commercial-residential mixed-use
 - Commercial space is provided on the first floor, characteristic of a traditional KyoMachiya.
 - Residential spaces are at rear and on upper floors.
- Promote Local Businesses
 - The commercial space is connected to the two-bedroom residential unit above to insure that the business activity will be local. Large domestic and international chain must be avoided to support local business. The two-bedroom residence connects with the rest of the residential spaces via the *genkan* “residential entrance” on the second floor. The types of acceptable commercial activity will be discussed with the neighborhood board.

4. Don't Negatively Affect Neighbors' Living Conditions

- Façade design
 - First two level façades align with the existing street elevation and the 3rd to 5th floors are set back to create minimum massing on the street.
- Building openings
 - No window faces directly into surrounding neighbors' buildings to provide privacy to the surrounding low-rise buildings. Windows of the neighbor are never visible in traditional KyoMachiya.
- Courtyard
 - Large courtyard is created in the middle of the building to preserve air movement and natural light. KyoMachiya has courtyards to bring air and light into the structure.

Existing four-story building



KyoMachiya Multifamily Residence

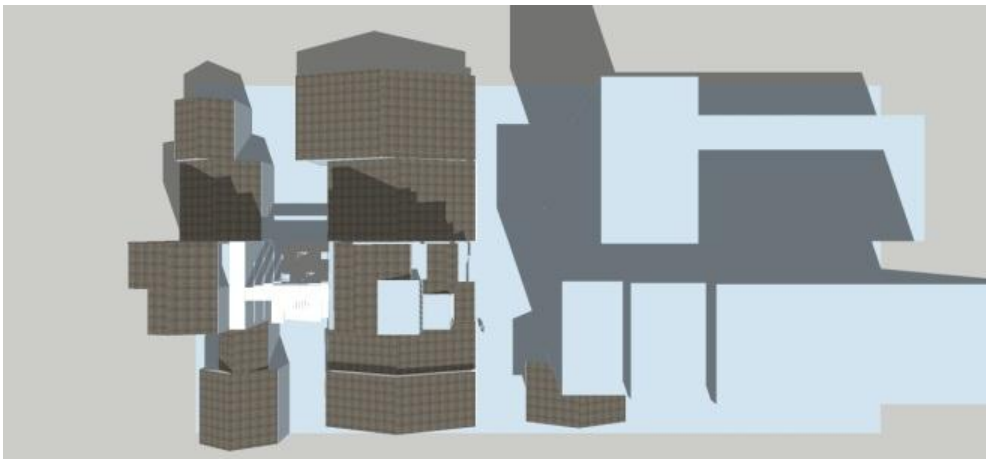


Figure 65: Natural wind and light diagrams



Figure 66: Façade elevation

5. Connection with Nature

- Strong connection to nature
 - The project takes advantage of the deep site by creating hierarchy in privacy. A shared corridor is placed in the center with the courtyard to provide cross ventilation and natural light to the units. Transitional spaces such as Engawa also create a strong connection to nature. KyoMachiya is often credited for been able to appreciate the seasonal changes in urban setting.

6. Ensure Flexibility

- Modular System
 - Each unit could be renovated individually. The stacked modular system allows this prototype to have different floor numbers. This prototype could be built as a two-to-three-story multifamily residence if the chosen site was in a low-rise residential district. Kyomachiya does not share a wall or structure with others therefor each unit could be renovated independently.
- Flexible Plan
 - Many units have a room that is convertible to common space or private space depending on the use and occasion. Sliding doors in KyoMachiya provide flexibility in plan.
 -



Figure 67: Unit plan

7. Allow new innovations

- New Innovations
 - Historic KyoMachiya were the most sophisticated merchant houses of their time; the new KyoMachiya must be just as innovative and sophisticated.
 - The building design does not necessarily have to have the look of KyoMachiya, but must fit into the neighborhoods with scaled materials and massing.

Square footage and estimated cost

The value of this property is 51,700,000 yen that is -7.6% less from 2009. The property size is 241m² and Floor to Area Ratio (FAR) is 400%. It will roughly cost 800,000 yen per tsubo to build⁹⁷ an apartment with steel structure. Average value of the new apartment units in Karasuma area is 1800,000 yen per tsubo.⁹⁸

Property	51,700,000 yen
Demolishing the existing	10,000,000 yen
Construction Cost Building area = 200 m ² Total building square footage = 776 m ²	189,046,000 yen ⁹⁹
Total Cost	250,746,000 yen

TYPE A: 1 bed room units (61 m ²) (3 Units)	33,270,000 yen per unit
TYPE B: 1 bed room unit (72 m ²) (1 Unit)	39,270,000 yen
TYPE C: 3 bed room unit (120 m ²) (1 Unit)	65,450,000 yen
TYPE D: 3 bed room unit (130 m ²) (1 Unit)	70,000,000 yen
TYPE E: 2 BD(72 m ²) + Commercial (77 m ²)(1 Unit)	123,000,000 yen
Total Value	397,530,000 yen

⁹⁷ Homes. *Real-Estate Homes*. 2010.

⁹⁸ Homes. *Real-Estate Homes*. 2010.

⁹⁹ Global Search Corp. *Fudosan Katsuyou Journal*. 2010.

Chapter 8: Conclusion

General Conclusion

Kyoto is the undisputed cultural capital of Japan and has been since the 7th century when it was also the political capital of Japan. Time has brought change to Japan; the political and financial powers have moved to the east, and the industrial factories have moved to third world countries. Kyoto has lost much of its population. People have moved away to follow the political, financial, and industrial powers. The landscape and cityscape of Kyoto have changed over the years as well.

The cityscape of Kyoto has seen an influx of high-rise office buildings, apartments, large department stores, and parking lots mixed in between, around, and sandwiching historical shrines, temples, and KyoMachiya. Property owners in Japan believe that they have complete control of their property.¹⁰⁰ Internationally famous architects favor projects in Japan because they have more freedom to test their ideas there. Property owners build projects that maximize profit without concern of the buildings impact to the neighborhood. It is common for eleven-story apartment buildings to sandwich two-story, low-rise historical assets in Kyoto. However, high-rises often take the natural wind and light away from the existing houses. Whereas much multifamily housing isolates residents from neighbors, multifamily KyoMachiya welcome neighbors and create social urban space.

The world has taken notice of these cultural assets, even though many citizens of Kyoto have taken these structures for granted for many years, demolishing and replacing them with high-rise apartments, high-rise office buildings, and large national and international department stores. Large chain stores such as Wal-Mart destroys the small mom and pop businesses in downtown and make every city identical to each other.

Some say that the attention to KyoMachiya is a fad and will quickly disappear.¹⁰¹ The residents of KyoMachiya believe in preserving them because they find beauty in their architectural form and lifestyle. Professor Yoshifumi said, "Our civilization is finally at the stage

¹⁰⁰ Tatsumi, Kazuo. *Machiya Style Multifamily Housing*. Kyoto: Gakugei, 1999. Page 257.

¹⁰¹ Yoshifumi, 2008, Page 27.

where we can demand beauty in our housing.” With the nationwide decline in population and over 6 million unoccupied houses around the nation, the Japanese homebuyer can choose from a variety of quality homes. Multifamily KyoMachiya offers a sophisticated urban lifestyle.

The purpose of the project was to understand how the replacements of Kyomachiya have changed the urban ecology of central Kyoto to design a design guideline that will bridge between the developers and neighbor boards. The project revitalizes the identity, social networks, and rich quality of life of Kyoto city. The prototype uses the typical property site of a KyoMachiya to preserve the scale of the pedestrian friendly streets that promote social activities and local businesses. The benefit of living in an urban center is the compactness of the city and the human scale of the streets. The citizens of Kyoto must acknowledge and promote this, so that more people will want to live in Kyoto, move to Kyoto, visit Kyoto, shop in Kyoto, eat in Kyoto, and work in Kyoto. Kyoto must allow other people to feel that unique “sense of place” so they too can continue to enjoy Kyoto.

Strength and limitation of Research

This project has provided comprehensive research of Kyoto city’s urban policies and how it shaped the city by using many Japanese materials that have never been translated in to English before. There are many books, articles and journals published about KyoMachiya, KyoMachiya revitalizations, *Machizukuri*, Kyoto’s urban policies, Kyoto’s apartment developments and Kyoto’s demographic studies but most of the resources were only available in Japanese. The research makes it clear that modern urban policies; architecture laws and westernized value system demolished the KyoMachiya. This project acknowledges the micro and macro problems that the KyoMachiya replacements have caused.

Kyoto and Japan as a nation is facing very large problems such as depopulation with one of the lowest birth rate in the world, decline industry due to globalization and chaotic cityscape due to poorly planned zoning regulations. Many of the buildings that are built today in Kyoto ignore those issues and only look at short-term profits. This project acknowledges the long-term vision of Kyoto city and provides a design guideline that will allow the developers to generate profit while keeping the surrounding neighbor healthy.

Speaking to the neighbor board and developers in central Kyoto could make this design guideline more appreciable to them. The weaknesses of this project have been the limited

resources that were available from the neighbor boards. Someone with foothold on Kyoto could continue the research by connecting to the people in Kyoto and acknowledge their issues while educating them. The Department of Geography in Ritsumeikan University has been working on virtual 4D GIS system that will allow people to understand the how urban policy shapes the city. The research team is surveying every property in central Kyoto to recreate Kyoto in virtual world. This study will help the city government visualize the effect of their policies and to have a very accurate visual presentation to gain understanding of their policies.

Glossary

Ban Business Policy – During World War II, the Japanese government controlled resources and concentrated on military weapons. Businesses of all kinds not related to agriculture were forced to close their doors.

Daiku – Traditional Japanese carpenters

Haiku – Seventeen-syllable poem

Hiragana – Cursive script used to transcribe syllabic Japanese

Kanji – Chinese calligraphic characters used in Japanese script

Kawara – Baked tile roof material. *Ichimonji gawara* was the type of kawara used in KyoMachiya; it helped to unify the city.

Kuge – Kyoto's highly cultured court nobles of old, descended from the Heian period's Fujiwara family and having semi-imperial status.

Kura – Storehouse traditionally used to store furniture and decorations.

Nara – Ancient capital of Japan until 784 when the capital was moved to Kyoto. Nara is home of Todaiji, the world's oldest existing wooden structure.

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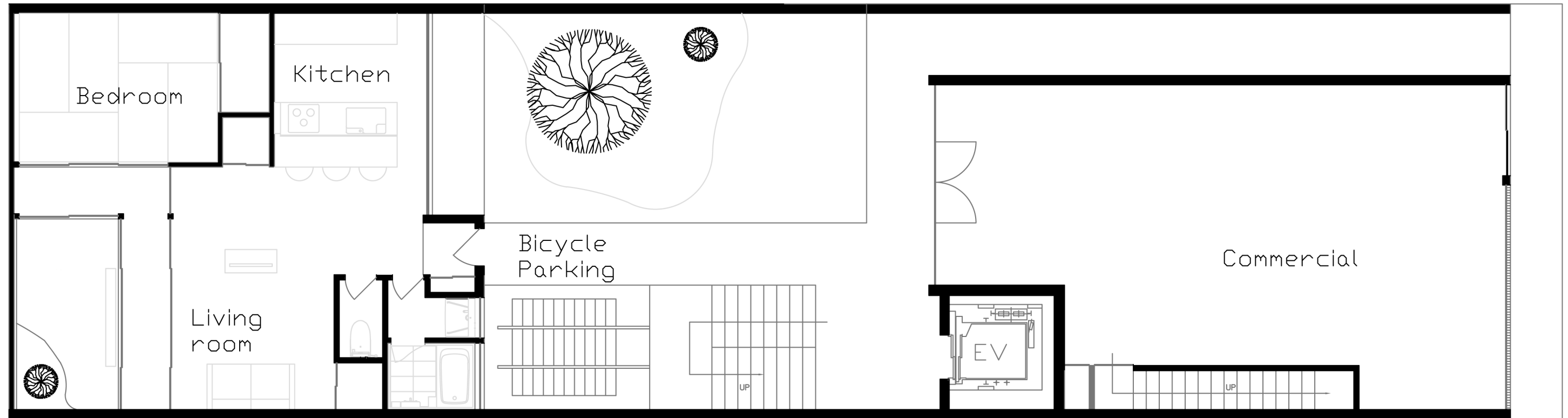
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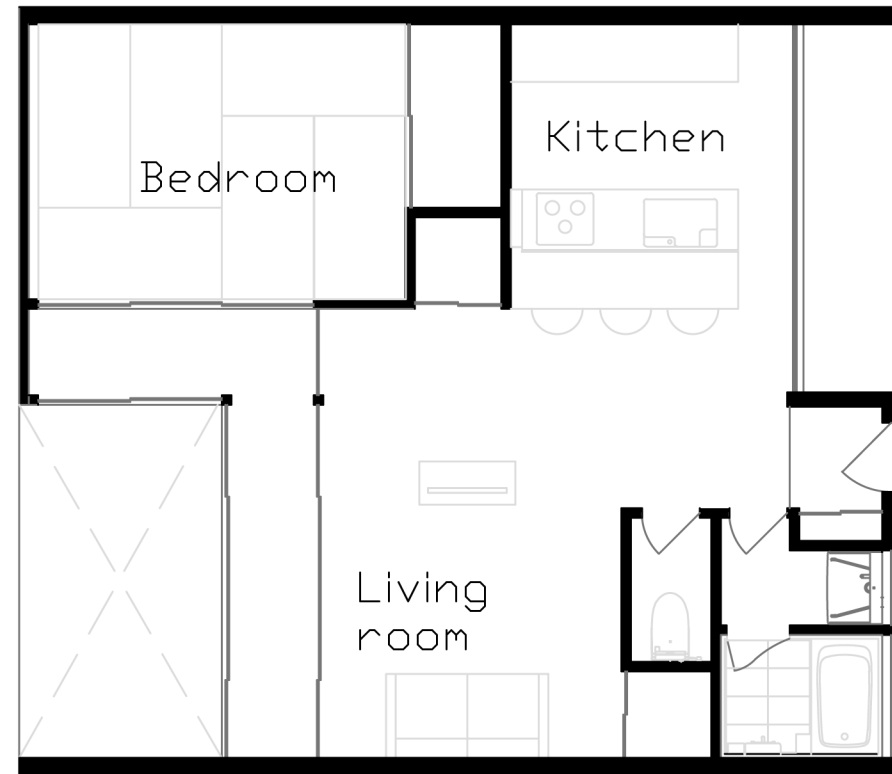
Unit Type E: 2BD + Commercial



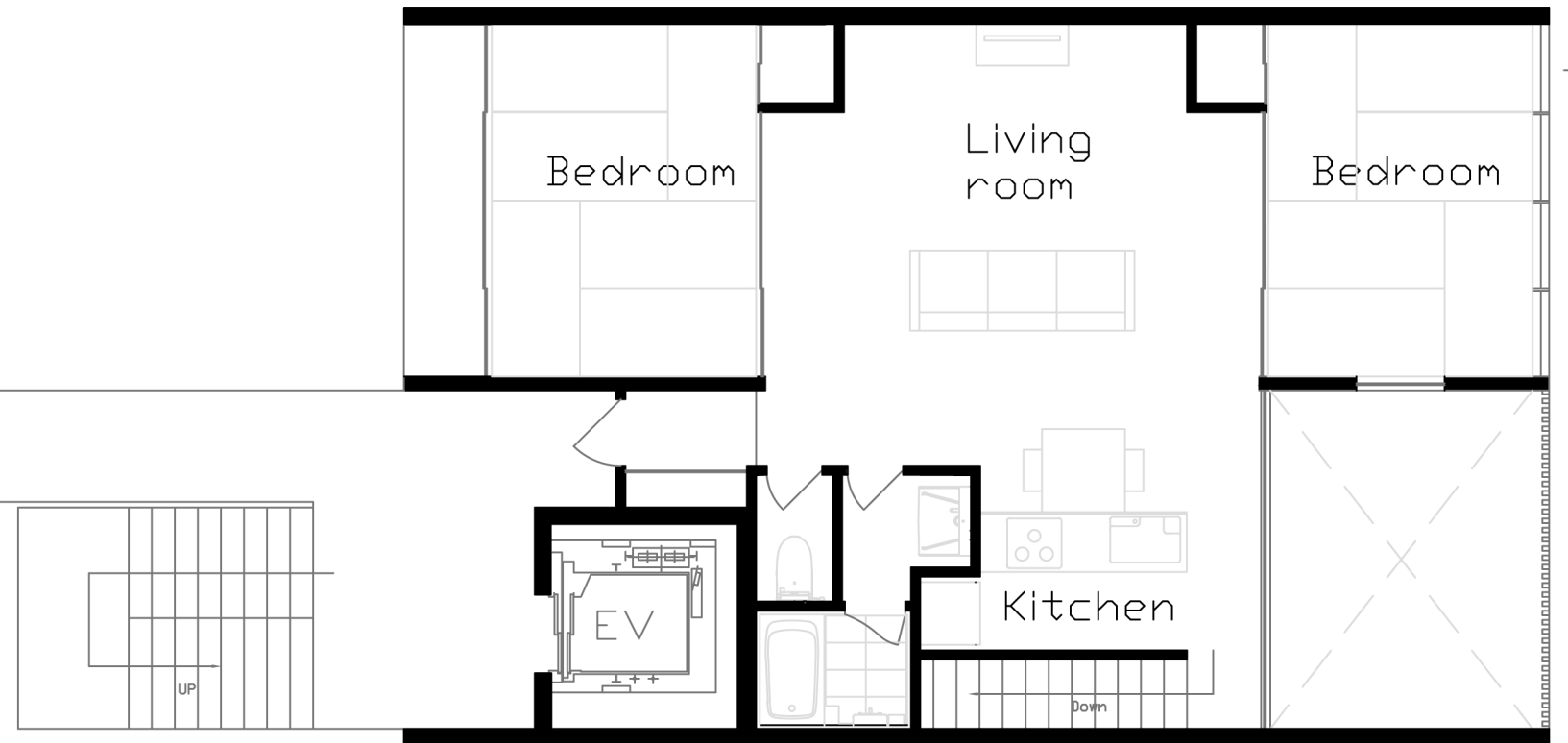
1st Floor Plan



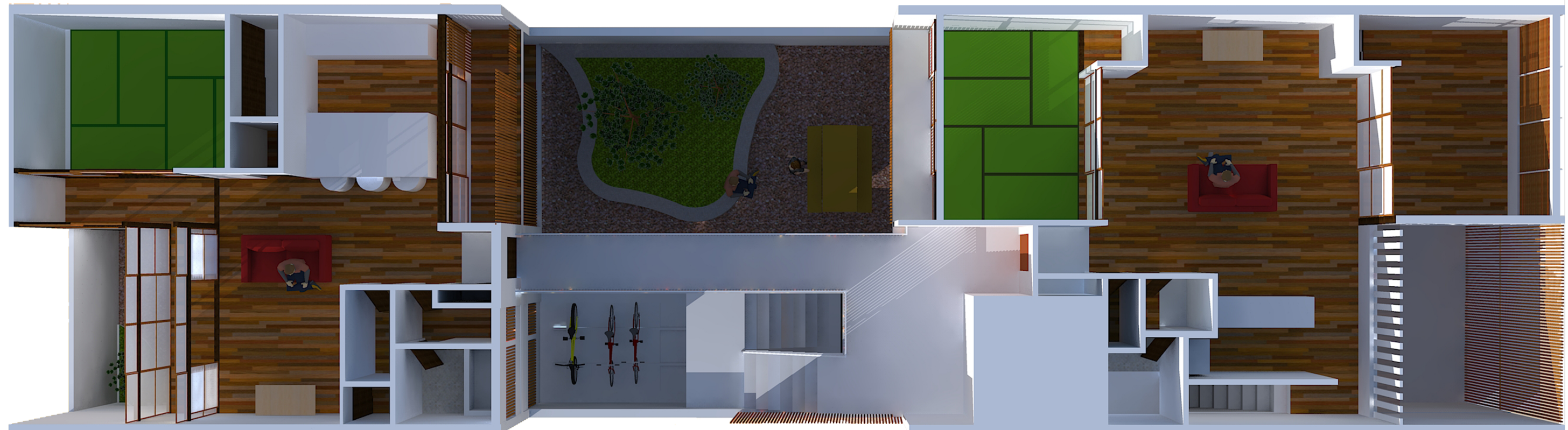
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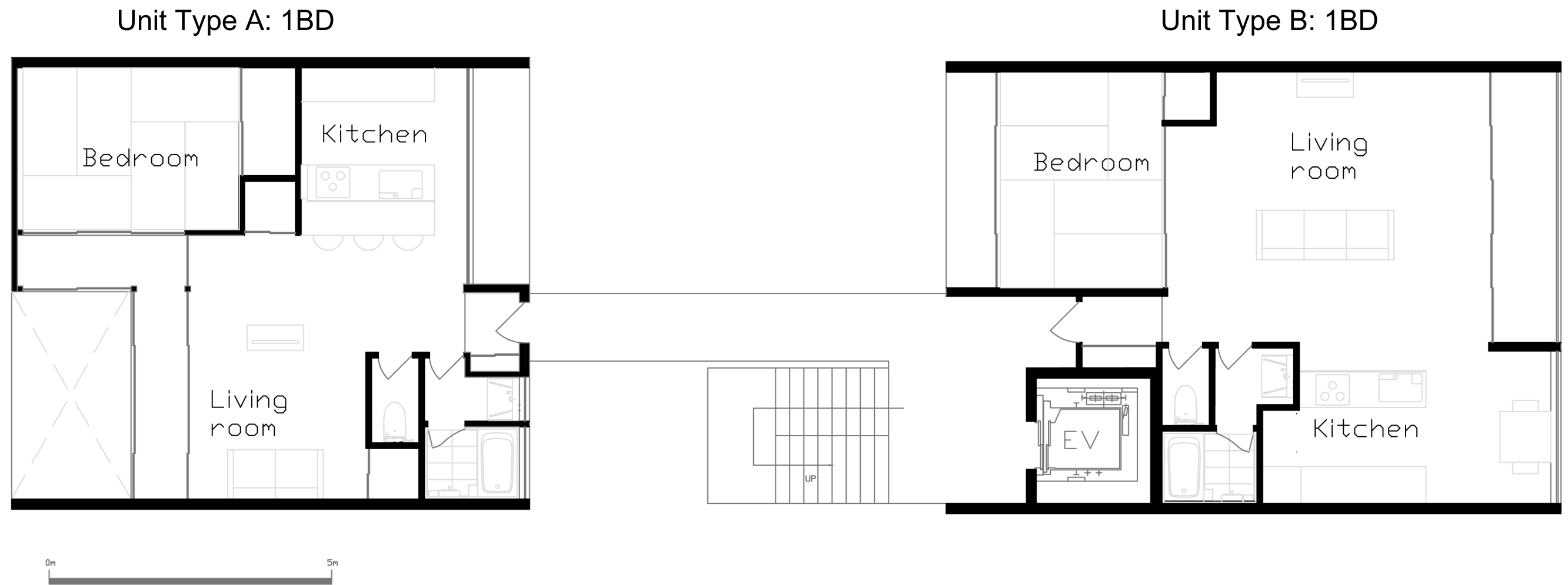


Unit Type E: 2BD + Commercial



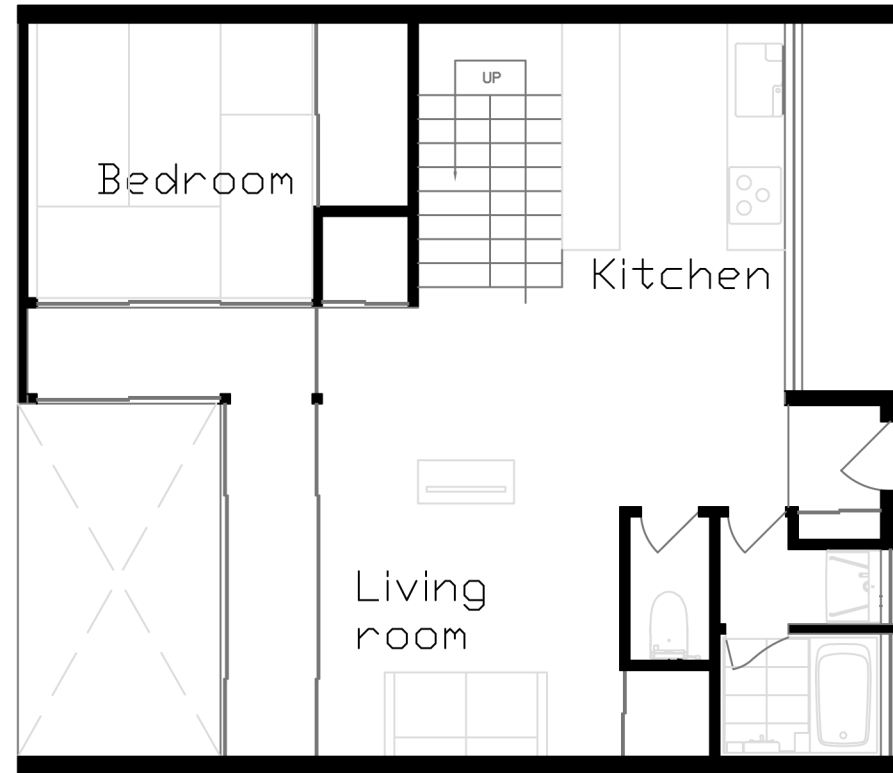
2nd Floor Plan



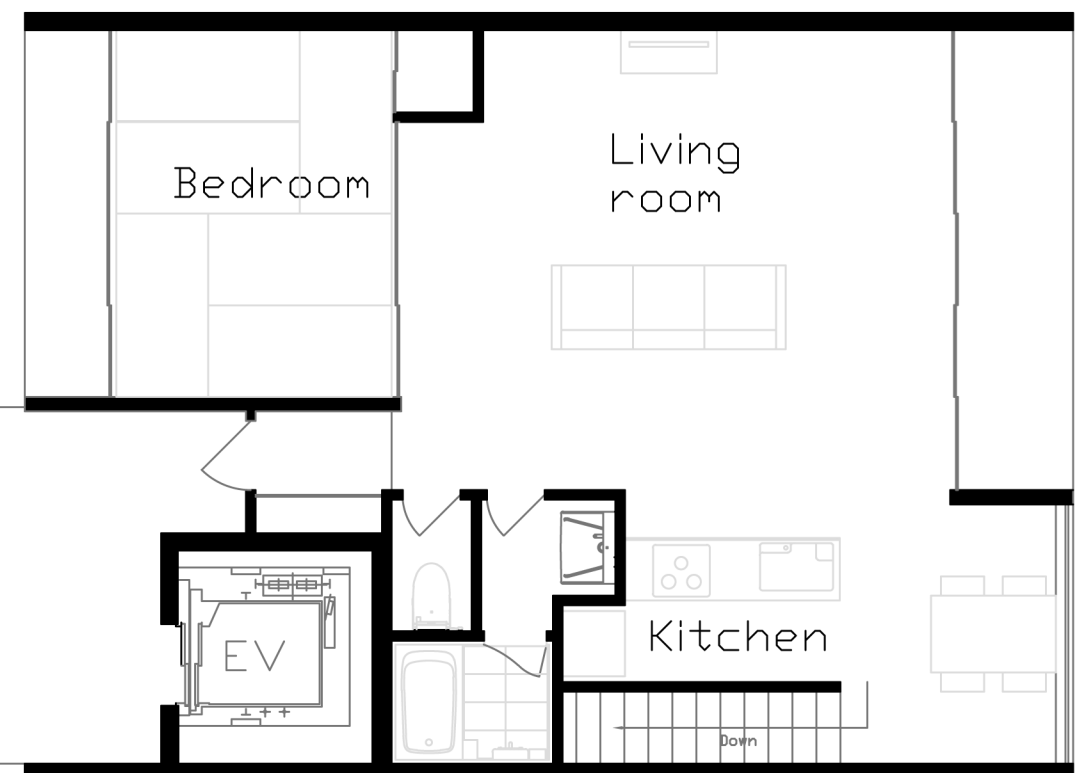


3rd Floor Plan

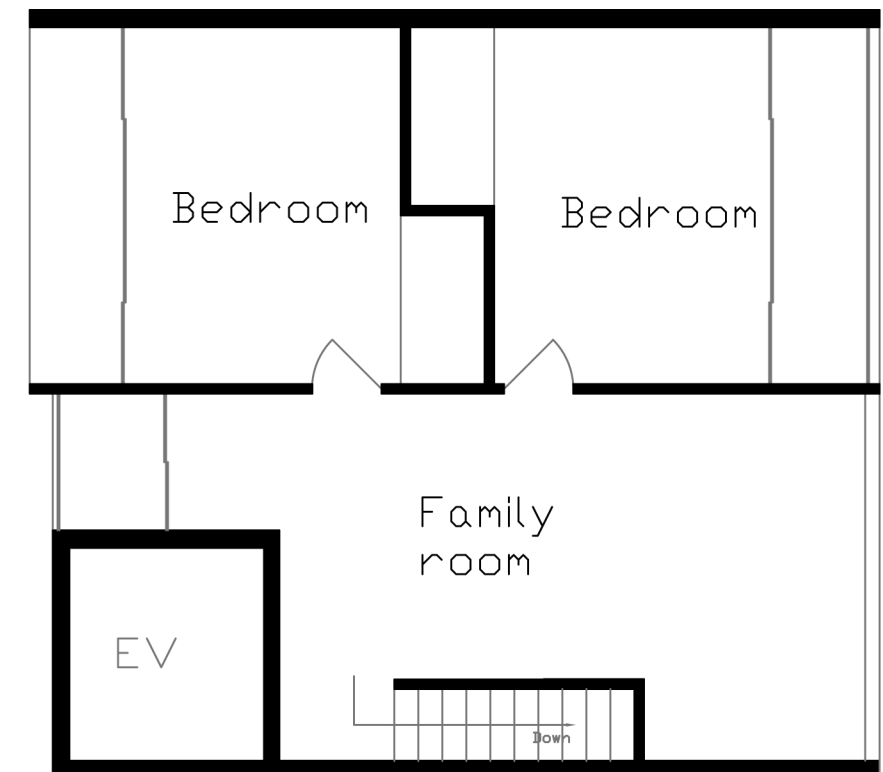
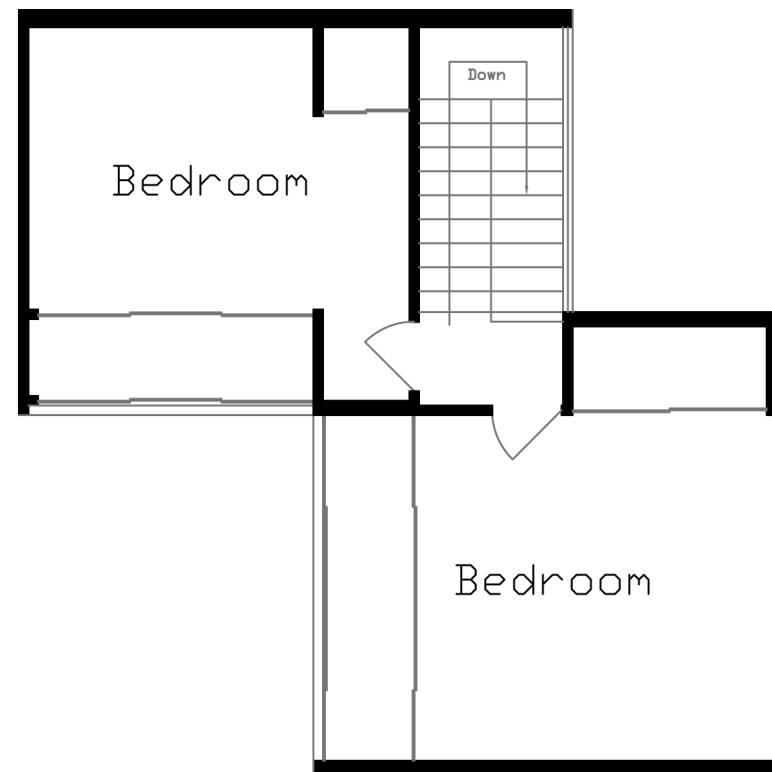
Unit Type C: 3BD



Unit Type D: 3BD



4th Floor Plan



5th Floor Plan

